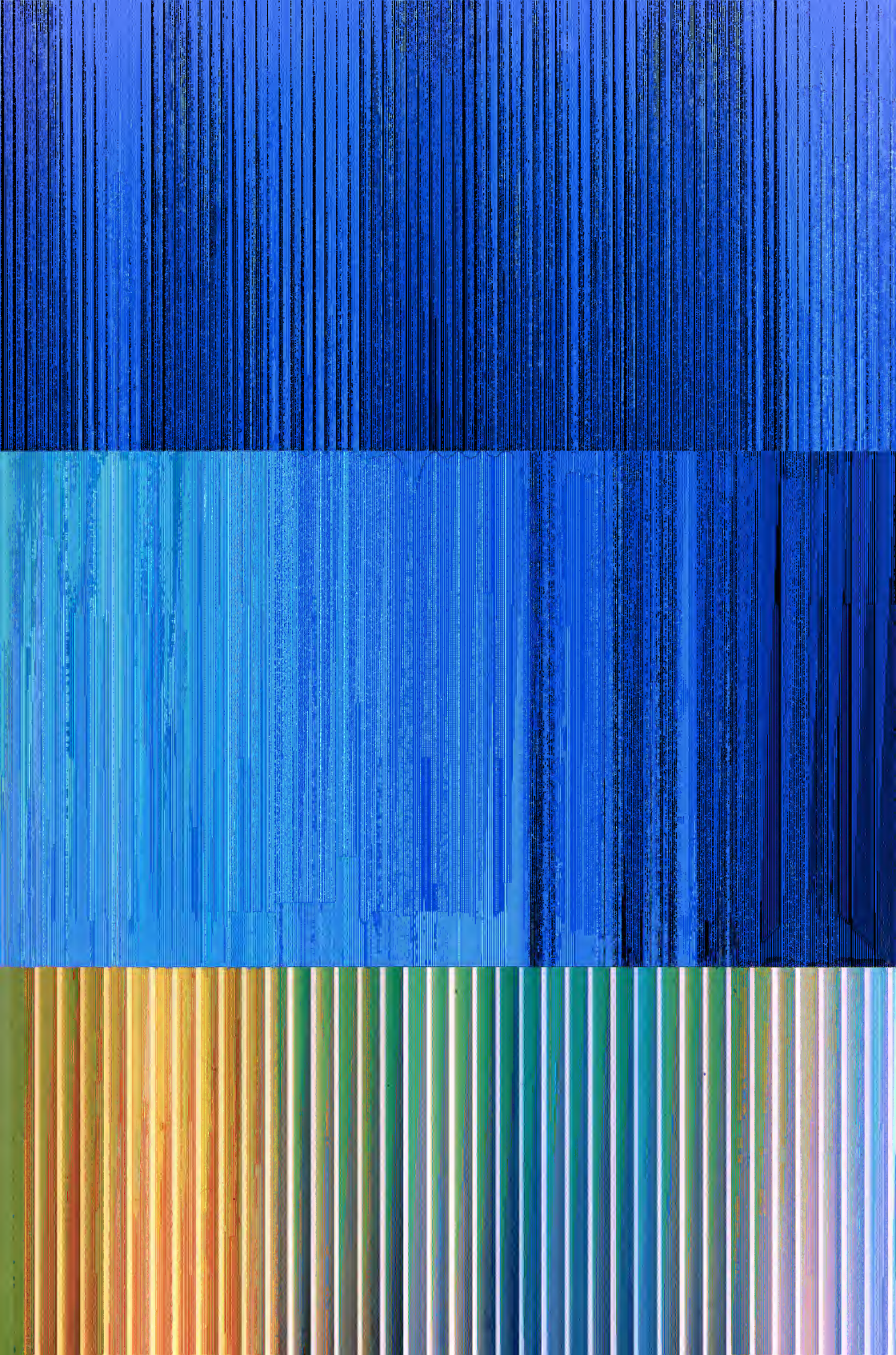




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THE AMERICAN JOURNAL

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OPHTHALMOLOGY,

VOLUME XIII. -- 1896.



ADOLF ALT, M.D.,

1896.

ST. LOUIS, MO.



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VOL. XIII.

JANUARY, 1896.

NO. I.

EDITORIAL.

ANNOUNCEMENT.

With this number THE AMERICAN JOURNAL OF OPHTHALMOLOGY enters upon its thirteenth year of existence. As stated in the last number, it, furthermore, is from now on under the sole and absolute control of its editor.

In order to enhance the usefulness of the Journal, the editor, besides enlarging its space, has determined on certain changes, which he thinks the readers will appreciate.

In the future, while giving as much space as possible to original matter, there will be an *Ophthalmic Digest*, in which will be given an early review of current ophthalmic literature; and *Ophthalmic Clinics*, in which will be collected short reports of cases of especial interest from the different leading clinics of the country.

In his endeavor to maintain and further the standing of THE AMERICAN JOURNAL OF OPHTHALMOLOGY, the editor will be actively assisted by the work of Dr. J. E. Jennings, of this city, and a staff of able collaborators.

The editor himself will give a series of papers on original investigations in histology and pathology, like the one in the present number, illustrated by micro-photographs.

In announcing these prospects we hope, not only to retain

all the former subscribers, the valuable aid of our collaborators and the good-will of the general ophthalmic public, but to add to each and every one of these groupes.

In the future, authors of Original Articles will receive free 100 reprints (without cover) of their respective articles, instead of 25 copies of the Journal, as heretofore. Any additional numbers and covers wished for, will be charged with the paper and presswork only. As is customary, such a desire should be expressly written on the manuscript.

No more articles will be received as original, unless they are *exclusively* given to this Journal.

Address all communications to

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St. Louis, Mo.

ORIGINAL ARTICLES.

ON E. TREACHER COLLINS' SO-CALLED GLANDS OF THE CILIARY BODY.

[WITH MICRO-PHOTOGRAPHS.]

BY ADOLF ALT, M.D.,
OF ST. LOUIS, MO.

In Volume XI of the "Transactions of the Ophthalmological Society of the United Kingdom," Mr. E. Treacher Collins published an article "On the Glands of the Ciliary Body." As such he considers certain projections which spring from the outer surface of the pigment, or uveal, layer of the ciliary body. The function, he assigns to them, is the secretion of the aqueous humor.

This article, although, it seems, little read, was the more worthy of note, as its author had, as the first, methodically bleached the uveal pigment and had succeeded in demonstrating the fact, that the pigmented layer of the ciliary body, as well as that of the posterior surface of the iris, consists of epithelial cells. Although this was exceedingly probable, even all but certain, it was proven to be a fact only by his bleaching process. Whoever has succeeded in bleaching the uveal pigment in human eyes, has undoubtedly found the conditions as described by E. Treacher Collins and, I think, we owe him lasting thanks for having introduced this aid to the study of the histology and pathology of the eye.

In almost every section of the ciliary body, whether meridional or æquetorial, whether from the newly born or the adult, whether from a blue or a brown eye, whether from a normal or a pathological eye (in which the tissues concerned have not been destroyed by the pathological process) a varying, but always a comparatively large, number of small tongue-, club-, or pear-shaped projections from the outer surface of the

pigment layer can be found. (See Fig. 1). In some sections these projections are larger, than in other specimens, and sometimes they are apparently wanting. They are situated, more particularly, or, are at least more easily seen, in the anterior part of the pars non-plicata and in the posterior part of the pars plicata of the ciliary body. They are probably rarer, certainly more difficult of demonstration, in the ciliary processes. In this region, in fact, I have found these projections but rarely and only in æquatorial sections. The difficulty of recognizing them in this region lies in the endless curvings of the ciliary processes, which, when cut obliquely may produce similar pictures which, however, are fallacious. I speak solely of the solid projections on the outer surface of the pigment layer.

I fully agree with Collins on this subject, and the existence of these projections, especially where the pars non-plicata joins the pars plicata and back to the ora serrata, is undoubted. Furthermore, in most of my sections they are so numerous that the statement made by J. Griffith (*Ophthalmic Review*, August, 1894), that there are but "two or three" such structures in a single section, can not possibly be reconciled with the facts as I have seen them in a very large collection of specimens, examined particularly with regard to this point. How to explain this discrepancy I do not know, unless Griffith speaks of something totally different from what he intends to discuss. His statement is the more remarkable, as Collins' article is accompanied by excellent micro-photographs of some bleached sections. The accompanying micro-photographs of my own (see Figs. 2, 3, 4), may add to his testimony.

In order to see these structures which Collins has termed the glands of the ciliary body, it is, however, not necessary to bleach the sections. (See Fig. 1). Bleaching simply shows that the processes consist of the same cells as the pigment layer of the ciliary body and are in direct connection with it.

Certain pathological conditions, described by me many years ago, having been adduced by Collins and certain, rather unparliamentary remarks, having been made by Griffith about the "theory brought forth by me and elaborated by Collins," I have given a great deal of time and labor to the study of this question in unbleached and in bleached sections, made in æquatorial, meridional and oblique directions.

To what I have written before I have not the space to revert. Yet, if the reader will refer to my paper "On Pathological New-Formation of the Pigment-Epithelium" in Vol. VI, *Archives of Ophthalmology and Otology*, and to my book "On the Histology and Pathology of the Human Eye," he will find that, contrary to Griffith's idea, I have never spoken of *glands* in this connection, but always of *gland-like* structures. It will, furthermore, be evident to the reader, that Collins can not have elaborated my theory, because I had offered none with regard to these gland-like structures. Griffith, in his paper, however, offers a theory with which he puts himself on record in the following words:

"Having, as I think, refuted in the main the hypothesis expounded by Collins, I should not feel, I had done so without prejudice, could I not attribute some function to the ciliary glands which have been robbed of their colors. I have found them to exist in greater numbers and of large size in dark-brown eyes; in blue eyes they are present but much less prominent; and in the eyes of albino rabbits, they are not to be found. It strikes me forcibly as highly probable that they control the amount of pigment in the eye and regenerate it as Nature demands."

It should have been interesting to hear, how these little projections in the ciliary body are thought to regulate the pigment formation in the eye—but here we are left to our own thoughts and I confess, I do not see, what explanation Griffith may offer.

In all my former reports on this and similar subjects, I have rigorously tried to give the facts unvarnished as I saw them, and I shall do so now. The photographic illustrations may be used as a control.

In the first place, a few words, regarding the bleaching process. When reading Collins' description of it, this seems to be a very simple affair, yet I have found it to be quite different. I have also tried Griffith's and other methods suggested by my friend, Dr. O. Curtmann, Professor of Chemistry, Missouri Medical College, yet I have always returned to Collin's method, now and then slightly modified. The time in which the section will be thoroughly bleached varies considerably and can not, in my experience, be definitely stated. The action of the chlorine and the acid produce a disagreeable

brittleness of the tissues, so that great patience and care are necessary in handling them. Yet, even after I had learned to overcome all this and to get a well-bleached and well stained section on the slide, the most aggravating trial was to clear up the specimen. As soon as a drop of oil of cloves was put on it, it would fly to pieces, and many and many a fine section have I thus lost. This accident can only be prevented by putting a drop of the oil on the coverglass and putting this quickly over the specimen. Even then some especially fine specimens are spoiled in a few days, by the pressure of the cover-glass alone.

With patience, perseverance and care it is, however, possible to succeed well in bleaching the uveal pigment altogether, and then in staining and mounting such specimens.

In such bleached specimens of the ciliary body and iris the epithelial cells are seen exactly as described by Collins.¹ (See Figs. 5, 6).

The structures, which he called the glands of the ciliary body, appear also (see Figs. 2, 3, 4), as described by him correctly in the following words:

"From my bleached sections I find that this layer from the root of the iris to the ora serrata consists of a single row of somewhat flattened cells projecting from the outer surface of which are numerous little processes, each composed of a group of cells. These processes vary in size and number in different parts. Thus in the anterior portion of the plicated part they are small, few and far apart, confined to the depressions between the ciliary processes, none being situated at their apices. In the posterior portion of the plicated part and at its junction with the non-plicated part, they are the largest and most numerous. They present here a very striking appearance, being pear-shaped, connected by their stalks with the surface and having their rounded ends projecting towards the ciliary muscle. Some of them can be made out to be composed of two parallel rows of cells. In the non-plicated part of the ciliary body they lose their pyriform outline, are smaller and more widely separated. They give rise to the elevations and depressions in the lamina vitrea which have been described by several observers, forming what Müller termed the reticulum of the ciliary body."

¹ Ophth. Hosp. Rep., XIII, Part I, p. 63.

From my own specimens I have to add to this description only, that I have come across a number of such processes, which had two and three short branches, and that in some specimens these processes are much more numerous in the pars non-plicata, than elsewhere. Some of the processes seem to consist of one large cell only, others are composed of five or six and a few, of more cells.

Collins further states: "By the examination and comparison of a large number of bleached and unbleached sections of the ciliary region cut on the flat I have been able to make out that the cells of these projecting processes are arranged in rings with a central lumen. Their tubular character is, however, much better shown when they have become enlarged in pathological conditions."

Here Collins' and my own observations differ materially. The normal processes of the pigment layer of the ciliary body, which Collins termed glands of the aqueous humor, and which Griffith considers as glands regulating the formation of pigment, I can not possibly recognize as special glandular structures. I can not find a single one in my very large collection of sections pigmented or bleached, stained or unstained, which shows a lumen. They are all simply pegs of cells projecting outward from the pigment epithelium layer. I find them, as stated before, in eyes of all colors and considered them folds due to the play of the ciliary muscle like the ridges in the iris (particularly its uveal layer), until I found them also, if less developed, in several eyes of newly born children.

But, whatever these pegs of pigmented cells may finally prove to be, neither their histological structure, nor their place of situation, nor their immense number can, it seems to me, be taken to prove their character as special glands.

Referring again to Collins' words, "their tubular character is, however, much better shown, when they have become enlarged in pathological conditions," I must again disagree, as they (the processes of the pigmented layer) do not become enlarged as a rule. In fact, I have never seen it, and if they became pathologically enlarged I should expect this enlargement to take place in an outward direction. (See Fig. 7).

I suppose, what Collins here refers to are the very cylindrical tubes growing inwards and found especially in cyclitic

membranes, which I have described, and from the description of which, Collins quotes *in extenso*. (See Fig. 8).

From a much enlarged observation on the same subject, I am almost satisfied now, that these tubular cell-cylinders originate in the unpigmented cells of the so-called pars ciliaris retinae. They seem to be the first to grow teat-like into the long and often numerous tubes which may anastomose with each other. The pigment may either be formed by these cells themselves, (on the back of the iris they always contain pigment), or they may take it up from the cells of the pigment layer. Certain it is that the farther advanced tubules (the more recent ones) are unpigmented, while their older parts nearer the pigment layer have become sometimes very darkly pigmented.

These cylindrical tubes show quite frequently an unmistakable gland-like arrangement of their cells around a lumen (see Fig. 9). They originate earliest and most frequently just where the ora serrata joins the so-called pars ciliaris retinae, but they may also start from points farther forwards.

That such tubules may form tumors, I have shown, and Collins has since found similar cases. Whoever has seen such a specimen can not possibly accept Griffith's idea, that we have to deal with "newly-formed lymph channels congested with leucocytes, performing a useful work in clearing away the melanotic debris of disintegrated pigment cells from the site of the recent inflammatory battle—in other words, a process of phagocytosis." (See Fig. 10).

In all these studies I have tried hard, to convince myself of the correctness of Collins' views. This paper with its illustrations shows, I think, why I consider his view of the special glands untenable.

Yet, all that he had so ingeniously said in his paper about the function in health and the role in certain diseases (like serous iritis) played by these glands, can well be applied to the whole cellular covering of the inner surface of the ciliary body with its processes and their endless curves. It seems to me, that the views of Nicati and other observers, that the ciliary part of the retina (so-called) together with the pigmentary epithelium form one large uveal gland which secretes the aqueous humor, is the only acceptable one. Certainly, the filtration of the aqueous through these cell layers is commonly not visible. Yet I have, like Griffith and others, often met



FIG. 1.

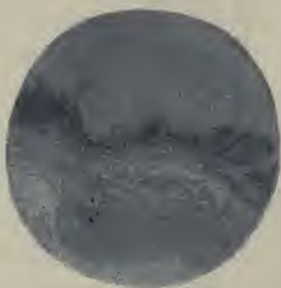


FIG. 2.



FIG 3.

with a number of cells, in a specimen of this region, which contained evidently a clear fluid, by which, the cell-wall was completely filled. Such a condition I have most frequently seen in the pars non-plicata and a few times in the ciliary processes, but apparently always affecting the cells of the so-called pars ciliaris retinæ alone.

I have, however, lately found in the bleached sections of several eyes such a condition to affect *both* layers of the cellular covering of part of the ciliary processes. Almost all of these cells appear to be changed into vesicles containing, besides their nucleus, a perfectly clear fluid which is not stained by the hæmatoxyline-eosine process to which these specimens were subjected. (See Fig. 11). Perhaps, we have in these specimens, examples of how these cells may become dropsical, that is, distended with the very fluid which in the norm is filtered through them, when this filtering process is interfered with. These specimens all come from glaucomatous eyes. The explanation just given as regards this dropsical condition seems to me to be the only natural one, and it seems to me, furthermore, that from such a pathological condition we can better form a correct idea of the manner in which under normal conditions the filtration of the aqueous humor takes place, than from any experiments.

LEGENDS DESCRIPTIVE OF ILLUSTRATIONS.

FIG. 1.—Section through the pars non-plicata of the ciliary body of an injured eye with cyclitis showing the pigmented pegs on the outer surface of the uveal layer, which E. Treacher Collins considers the glands of the aqueous humor.

FIG. 2.—The pigmented cell-pegs of the uveal layer in the region where the pars non-plicata joins the pars plicata of the ciliary body, bleached by E. Treacher Collins' method, showing their various shapes. The so-called retinal layer of the ciliary body is not shown in the cut; it lies on the lower side.

FIG. 3.—Part of the pars non-plicata of a ciliary body, bleached. In this specimen the so-called retinal layer of the ciliary body can be easily recognized below the cell-pegs springing outward from the uveal layer. This specimen shows in how large a number these cell pegs may be found in some eyes.

FIG. 4.—A few of the cell-pegs (E. Treacher Collins' so called glands of the aqueous humor) seen under a high magnifying power, showing that they consist of a few epithelial cells, closely adherent to each other. There is no lumen. Below can be seen the nuclei of the cells of the so called retinal layer of the ciliary body.

FIG. 5.—Part of the ciliary body and root of the iris from the normal eye, bleached by E. Treacher Collins' method. It shows the two rows of cells covering the inner surface of the ciliary body and passing over onto the iris unchanged. The so-called retinal layer of cells of the ciliary body, is unpigmented; when it has reached the posterior surface of the iris, it is pigmented and forms what is usually termed the uveal layer of the iris.

FIG. 6.—The same as Fig. 5, under a much higher magnifying power, showing very plainly the two layers of cells (retinal and uveal) covering a ciliary process (below) and passing onto the posterior surface of the iris. (The pigment is bleached by E. Treacher Collins' method).

FIG. 7.—From an eye suffering from chronic irido-cyclo-chorioiditis. There is a dense cyclitic membrane into which numerous pigmented tubular and gland-like structures grow just in front of where the ora serrata joins the retinal part of the ciliary body. E. Treacher Collins' so-called glands of the aqueous humor are seen, unchanged, on the outer side of the uveal pigment layer and are not concerned in the new growth formed on its inner side.

FIG. 8.—Injured eye with cyclitis and detachment of the anterior part of the choroid. The ciliary muscle to the right side (not visible in cut). The specimen shows what an enormous number of tubular excrescences from the ciliary body may be formed occasionally on its inner side and grow into a cyclitic membrane.

FIG. 9.—Is part of the lighter (left hand) portion of Fig. 10. It shows, and I want to distinctly emphasize that no retouching of any kind has been done, that the tubular excrescences, when cut obliquely or transversely, show often a distinct lumen, like glands. In this part all the tubules are made of unpigmented cells. This is the more recent growth of tubules lying farther inward toward the axis of the eye.



FIG. 4.



FIG. 5.



FIG. 6.



FIG. 7.



FIG. 8.



FIG. 9.



FIG. 10.



FIG. 11.

FIG. 10.—This is part of the tumor consisting of pigmented and unpigmented tubular structures as described by me and termed an adenoma by E. Treacher Collins. From Fig. 9, it may be seen, that these tubular structures often show a distinct lumen, like glands. In this small photograph this fact is not apparent, yet the pigmented tubules with a high magnifying power appear very much like the unpigmented ones in Fig. 9.

FIG. 11.—Part of the ciliary processes from an eye blinded by glaucoma. Bleached by E. Treacher Collins' method, and stained with hæmatoxyline-eosine. The micro-photograph shows plainly that the uveal and the retinal layer of cells are both dropsical; that is, their cells being unable to discharge the clear fluid (aqueous humor) normally filtered through them, are filled with it and distended so as to give them the appearance of vesicles. The nuclei of the uveal cells lie near their outer surface, those of the retinal cells near their inner surface.

A MODIFIED COVER-CHIMNEY.

By JAMES THORINGTON, M.D.,

Adjunct Professor of Diseases of the Eye, Philadelphia Polyclinic, Etc.

In Jackson's method of skiascopy, the original source of light is placed close to the eye of the observer. To cut off the glare he devised a metal (sheet iron) cover-chimney which fits easily over the glass-chimney of the Argand burner. A round opening, one centimeter in diameter, is placed six centimeters from the lower edge of the cover.

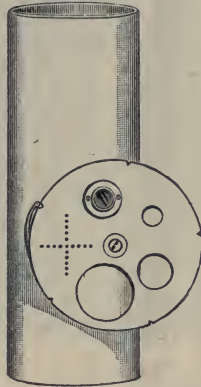
As an improvement over this I had made about a year ago, an asbestos chimney, for which I claim two advantages:

1. A draft of air may strike the asbestos with impunity, as it does not chill and cause a break of the inner glass-chimney, the broken glass cutting the mantle of the Welsbach, as has happened repeatedly with the writer in the use of the metal chimney, thus putting an end to further examinations until repairs were made.

2. The lower part of the asbestos does not get so warm but that the chimney may be removed without burning the fingers if it is desired to use the same light for purposes other than skiascopy.

As a modification of my asbestos chimney, Messrs. Wall and Ochs, of this city, have added their revolving disk, with certain changes, at my suggestion.

The chimney as formerly made had but the one round opening (one centimeter in diameter), whereas the revolving disk permits of five changes for as many purposes, and is so



secured to the chimney that by means of a ratchet it will remain in any position desired.

The five changes as made by the disk are as follows:

- (1) The one centimeter opening fulfills all the purposes of the original chimney.
- (2) The two centimeter opening permits greater freedom of movement on the part of the observer, without moving the light.
- (3) The three centimeter opening may be used as a source of light by the concave skiascope, or for the ophthalmoscope, otoscope, etc.
- (4) A round section of cobalt blue glass for the chromatic-aberration test of ametropia has been added, as likewise:
- (5) The perforated disk, with perforations and spaces each 1.45 millimeter, to test for astigmatism at one meter distance.

This combination obviates the removal of the chimney, except in rare instances, and its great utility is my excuse for presenting it.

To Messrs. Wall and Ochs, the makers of this modified chimney, I am indebted for the accompanying illustration and their careful workmanship.

CLINICAL MEMORANDA.

FOUR CASES OF ALBINISM.

By J. ELLIS JENNINGS, M.D.,

OF ST. LOUIS, MO.

CASE I.—Mr. Charles W, clerk, aged 30, is a well-built man of medium size, and has always enjoyed good health. There is a total absence of coloring matter in hair, eyebrows, lashes and eyes. The pupils are of medium size and react well to light. A reddish reflex is observed, and there is marked nystagmus. Distant vision with correction, —sph. 9.00 D=²⁰/_{LXX}.

As the question of heredity is an interesting one, I made inquiry as to the family history. The complexion of his father, mother and sister is about the average. Three first cousins of his maternal grandmother were albinos. I failed to ask whether his father and mother were cousins.

The patient volunteered the following statement as accounting for his peculiar defect. About one month before he was born his mother was greatly frightened by one of the albinos, above mentioned, coming suddenly into the room and rousing her out of a sound sleep. At another time the father considerably shocked the mother by stating that if their child should be an albino he would knock it on the head.

CASE II.—Miss A., teacher, aged 25, is of medium size, and in good health. There is a total absence of pigment in the hair and eyes. Her sight is very imperfect, but as she was not a patient the refraction was not obtained. There is marked nystagmus. The family history is as follows: Her father and mother are first cousins. The father has light hair and blue eyes. The mother has brown hair and gray eyes. Of five children, all girls, the subject is the only albino. Three sisters have light hair and blue eyes, and the other sister has dark hair and brown eyes. As far as the lady knows, no relative, near or distant, has had this peculiar defect.

Dr. Albyn L. Adams, of Jacksonville, Ill., has very kindly

sent me notes of the two following cases, which he has observed, and states that it was impossible to obtain the refractive error.

CASE III.—M. McQ., 11 years old; a typical albino. Vision $\frac{3m}{l}$ each eye. Has a brother and sister but there is no other albino in the family. Has no albino relatives. Father and mother not related.

CASE IV.—Arthur S., 13 years old. Albino. Vision $\frac{5m}{l}$ each eye. Seven children in the family; one older brother and one younger sister albinos. Father and mother normal, and are not related. No other family history of albinism.

In a paper read before the Ophthalmological Section of the American Medical Association, 1893, entitled: "The Pernicious Influence of Albinism Upon the Eye," Dr. George M. Gould, of Philadelphia, came to the following conclusions:

1. Albinos are normally and even exaggeratedly healthy in mind and body.
2. There is no discoverable influence of heredity.
3. The sole pathological influence of albinism is upon the eye.
4. The ocular evils, photophobia, nystagmus, ametropia (especially high degrees of hyperopic astigmatism) and amblyopia are directly and indirectly caused by the transparency of the iris.
5. The *modus operandi* of this etiological factor lies (a) in the brilliant and diffuse illumination of the fundus of the eye by the non-exclusion of the peripheral rays of light by the faulty diaphragm, producing photophobia; (b) the lid and muscular pressure upon the globe, resulting from the attempt to exclude the light, produce the refractive anomaly; (c) the effort of the groping eye to localize and definitize the evanescent and indistinct image (also the effort to rest an over-stimulated portion of the retina), produces the nystagmus, and (d) the amblyopia is a necessary consequence of all these combined factors.
6. Proper correction of the ametropia lessens eye-strain, photophobia, and increases the power of near-range vision.
7. Nystagmus is much lessened by grinding the correction onto blue glass.
8. The younger the age at which treatment is begun, the more promising the result.

ESF

NOTE RESULTS SECTION.

XIV Part I]

Those cases in which the lens was extracted without an iridectomy are to a certain extent picked cases, that is to say, they include but few where previous disease had existed, or where there was reason to believe that the eye was unhealthy. Those cases in which iridectomy was done at the time of the extraction include a large number of eyes which were to all appearances healthy, except for the presence of the cataract; but there are also in this group a good many cases in which signs of previous disease were manifest.

RESULTS PER CENT. OF EXTRACTIONS.

| | V.=from $\frac{6}{6}$ to $\frac{6}{18}$. | V.=from $\frac{6}{24}$ to $\frac{6}{60}$. | V.=from $\frac{5}{60}$ to counting fingers | V.=hand move- ment and less. |
|-------------------------------------|--|---|---|---------------------------------|
| With iridectomy. . | 76.28 | 13.53 | 5.21 | 4.95 |
| Without iridec- tomy | 78.38 | 13.59 | 2.47 | 5.53 |
| Preliminary iridec- tomy | 73.20 | 14.09 | 6.69 | 5.99 |

From this table we see that the operation without iridectomy gives the highest percentage (78.38), but as has been pointed out, the cases included in the list contain but few which show any marked sign of disease. However the group of cases in which the iridectomy was done at the time of the extraction does not fall very short of the preceding (76.28), in spite of the fact that we certainly have a good number of unfavorable cases.

The third group in which preliminary iridectomy was done, does fall considerably below the other two (73.20), but we have here a much higher percentage of unfavorable cases. The fourth column (V.=hand-movement and less) is distinctly in favor of the operation with iridectomy. In the third column V.= $\frac{5}{LX}$ to counting fingers) there is a marked difference. These figures go to prove an observation frequently made that cases of extraction without iridectomy when they do well give the best possible results, but should any complications occur they generally do much worse than those in which an iridectomy has been performed.

NUMBER AND RESULTS PER CENT. OF PROLAPSE OF IRIS.

| | Number of cases. | V.= $\frac{6}{6}$ to $\frac{6}{18}$. | V.= $\frac{6}{24}$ to $\frac{6}{60}$. | V.= $\frac{5}{60}$ to counting fingers. | V.—hand movements or less | Excisions. |
|---------------------------|---------------------|--|---|---|---------------------------------|------------|
| With iridec- tomy . . | 0.87 | 66.66 | 16.66 | — | 16.16 | — |
| Without iri- dectomy . | 13.86 | 72.97 | 10.81 | 2.70 | 5.41 | 8.10 |

Here, as we should expect, the latter operation will not bear comparison with the former. It has been suggested that the cause of so many prolapses after extraction without iridectomy is the fact that the operation at Moorfields is not done with the patient in bed, and that the movements made after the extraction cause the prolapse. This view, however, can not be substantiated by fact. I have frequently examined a case within an hour or more of the operation, when the patient is back in bed, and provided there has been a good conjunctival flap, found the anterior chamber re-formed, the wound closed, and the pupil circular. Yet a few hours later the iris had become prolapsed and the anterior chamber obliterated. This is probably brought about by the patient squeezing the lids or making some slight movement of the facial muscles sufficient to cause a little extra pressure on the globe; the result is that the wound is opened, the aqueous escapes and carries the iris with it. A secondary iridectomy has then to be done under very unfavorable conditions, and often with the aid of a general anæsthetic.

This is the usual way in which prolapse occurs, but there is still another way, and I now refer to those cases in which the iris remains in position for several days; the pupil is seen to become more and more pushed up to the wound, and finally a prolapse takes place. Many of those cases are due to soft lens-matter having been left behind after the bulk of the lens has been removed; this is out of reach, as it is underneath the iris, and as time goes on it swells and causes a prolapse. The above table shows a prolapse to be a serious complication to

any operation. Of the cases of prolapse of the iris without iridectomy, 83.78% obtained vision between $\frac{6}{VI}$ and $\frac{6}{LX}$; 5.41% were not benefitted by the removal of the cataract, and the percentage of excisions reached the very high total of 8.10. Now, considering that these are mostly picked cases, the results of the operation can not be considered favorable.

LOSS OF VITREOUS.

| | |
|---------------------------------|---------|
| With iridectomy, - - - - | 3.75%. |
| Without iridectomy, - - - - | 2.99%. |
| Preliminary iridectomy, - - - - | 10.81%. |

In the operation with iridectomy at the time of extraction the percentage of cases in which vitreous is lost is not very much higher (3.73); but after preliminary iridectomy the percentage is much greater (10.81). We must again remember that in this group we have a very large number of unhealthy eyes. The percentage of all cases which fall into the group usually termed "successful" ($V. = \frac{6}{VI} - \frac{6}{LX}$) is 72.91. The percentage of cases whose vision equals hand-movement and less is 14.58, and 4.16% finally come to excision.

GLAUCOMA FOLLOWING EXTRACTION.

| | |
|---------------------------------|--------|
| With iridectomy, - - - - | 0.42%. |
| Without iridectomy, - - - - | 1.17%. |
| Preliminary iridectomy, - - - - | 0.61%. |

Of the cases in which the extraction was followed by an increase in the tension of the globe, the lowest percentage belongs to the group in which extraction was done with iridectomy at the same time (0.42), and the highest (1.17) in the cases of extraction without iridectomy.

PERCENTAGE OF AGES OF PATIENTS OPERATED UPON.

| | |
|-------------------------|---------|
| Below 50, - - - - | 11.53%. |
| 50—60, - - - - | 19.42%. |
| 60—70, - - - - | 41.34%. |
| 70—80, - - - - | 25.27%. |
| 80—90, - - - - | 2.23%. |
| 90 and upwards, - - - - | 0.13%. |

BLACK AND DARKLY COLORED CATARACT.

The number of cases of black and darkly colored cataracts that were extracted is 33. They are commonly found in myopic eyes; of these there were 17, or 51.51%. The percentage of so-called successful cases ($V.=\frac{6}{VI}-\frac{6}{LX}$) was 62.95. The percentage of cases in which there was only hand-movements is very high 18.51 and 3.03% were excised. These figures uphold a common impression that the prognosis in cases of black cataract is somewhat unfavorable. A large number of these eyes are really diseased before the operation is undertaken.

SUPPURATIONS AFTER EXTRACTIONS.

| | |
|---|--------|
| With iridectomy, - - - - | 1.72%. |
| Without iridectomy, - - - | 1.78%. |
| Preliminary iridectomy, - - - | 1.58%. |

It is very significant that the cases in which the simple operation was done provides the highest percentage of suppurations. This group, which contains the largest proportion of the healthiest eyes, certainly ought to give the least number of suppurations, supposing that one operation were not beset with more danger than another; but the frequency of prolapse occurring after the operation without iridectomy must be considered a powerful factor in this process.

SYMPATHETIC OPHTHALMIA FOLLOWING EXTRACTION.

Sympathetic ophthalmia following extraction of cataract is, fortunately, a somewhat rare condition. The two operations with iridectomy give almost identical percentages, viz., 0.60 after preliminary iridectomy, and 0.61 after the other operation. There are no cases recorded of sympathetic ophthalmia following extraction without iridectomy; but cases operated upon in this manner are certainly not exempt from this complication.

SECONDARY OPERATIONS.

The secondary operations form an important item when considering the results of extractions. During the five years

there were 404 operations performed for capsular opacities and there were 108 other secondary operations, besides 29 excisions, making a total of 541, and when expressed in percentages it amounts to 26.79 of secondary operations on the capsule, 7.04 of other secondary operations and 1.90 of excisions. It is a well-known fact, that after simple needling of thickened capsule the vision is materially improved, and, with few exceptions, normal acuteness of sight is obtained, provided that the eye is healthy, and that no secondary complications supervene. A certain number remain unimproved after needling for the simple reason that the flap of capsule that is cut through falls back into its original position, and obstructs vision as before. As a rule, a second needling is successful.

What I chiefly want to bring under notice are the secondary inflammatory and degenerative conditions which unfortunately occur after needling of capsule, and which permanently diminish or even destroy the sight.

The two most formidable dangers are *glaucoma* (2.08%), and *suppuration* (1.02%); besides these we get a number of cases in which slow inflammatory changes are set up in the eye, which ultimately diminish or even permanently destroy the sight (5.58%).

The explanation of *increased tension* occurring after needling is by no means easy. It is more often seen in those cases in which the capsule is caught in the wound, though if there be tension before the secondary operation is undertaken, a free division of the capsule sometimes permanently relieves the glaucomatous condition.

As to *suppuration*, it is certainly remarkable to find that this occurs in 1.02% of the cases needled, this being very nearly as high as what occurs after the far more extensive operation of extraction.

Now it is obvious that there must be some source of infection. The actual state of things is this. A minute wound is made in the cornea with a needle, and the capsule is punctured. In most cases the point of the needle at least enters the vitreous, the thickened capsule is then cut or torn by its sharp cutting edge. Now we have a direct communication between the exterior and the vitreous chamber. In some cases I have seen a tag of capsule, or even vitreous, follow the needle, when it is withdrawn, right up to the corneal puncture,

and even when this has not been noticed, I have frequently seen a tag caught in the wound and projecting from it within a day or so, and on careful examination one can often see it running across the anterior chamber back to the deeper parts of the eye. This is a very ready means by which the interior of the eye may become infected, and it is of the utmost importance to recognize it early, so that the tag may be removed; in most instances it can be drawn out and cut off, and then if the puncture be touched with the galvano-cautery it is effectually sealed, and the danger is over. But unfortunately, infection may have already taken place. One is sometimes able to see that the tag is the source of infection, and that purulent infiltration is starting from it.

There is still another danger in the operation of needling. I refer to the physical violence that the iris and ciliary body suffer, when a tough membrane is being divided. Of course the danger is much lessened by using a needle with a very sharp cutting edge, but no matter how sharp the needle may be, it is impossible to avoid tearing the capsule in some cases instead of cutting it. This is seen in its extreme degree, when there happen to be posterior synechiæ present, and all operators must have observed hæmorrhage occur at times from the iris or ciliary body, when a particularly tough membrane which is adherent to the iris is being divided. All eyes will not stand this without showing some signs of resentment, and it is frequently these which give the bad results.

PRACTICAL CONCLUSIONS.

In very briefly reviewing the results of the three chief operations for extraction, there are one or two points that I want to call especial attention to, and also wish, as far as possible, to draw some practical conclusions as to the sort of operation that in equally expert hands is likely to give the greatest percentage of good results, and the least percentage of failures.

There is a complication that almost entirely belongs to one group of cases, and that is secondary prolapse of the iris after extraction without iridectomy. We may almost disregard it in the other group, for it occurs is less than 1%.

Now it is an obvious fact, and one that is abundantly proved by the preceding tables, that prolapse of the iris after

an extraction is a very serious thing. Most of these cases occur within the first twelve hours, and the result is that an operation has to be undertaken as soon as possible. If there is one thing more than another that is essential for success, it is keeping the patient absolutely quiet during the first few days after the extraction. Instead, however, of this, the patient has to submit to another painful operation, or else be put under a general anæsthetic, with all its evil accompaniments. The mental and physical condition under these circumstances are very far removed from the ideal tranquil condition that is so much to be desired. And now to return to the condition of the eye when a prolapse takes place.

The wound is forced open, and the iris is pushed between the flaps. The result of this is:

First—The edges of the wound are kept apart, and therefore no healing can take place.

Second—There is a direct communication from the conjunctival sac into the interior of the globe, and a road is open for the inlet of any septic organisms that may be present.

Third—The iris is not only prolapsed, but is also nipped in the wound, and it is under much the same sort of physical conditions as are met with in the case of a strangulated hernia, and even supposing gangrene does not occur, yet the delicate circulation of the iris is considerably interfered with, the veins become engorged, the iris is swollen and cedematous, and, if left long enough, covered with plastic exudation.

After the prolapse has been removed, the lips of the wound refuse to fall into place again, and it is often most difficult to get the cut edges of the coloboma into position within the eye; this is readily proved by the number of cases in which the iris is subsequently noted as being still entangled. In some cases a small prolapse again takes place. The result is that the eye is in a very dangerous condition, partly owing to the fact that iritis may be easily set up and possibly even sympathetic ophthalmia may occur. And supposing these serious conditions fail to manifest themselves, we almost necessarily have a cystoid cicatrix which is anything but desirable. I do not, of course, mean to suggest that every case of prolapse is bound to be followed by these serious consequences, for there are many in which excellent vision is obtained, but the risk that is run is at once seen by reference to the table showing

the results of prolapse of iris. These figures are sufficient to show what an extremely serious occurrence a secondary prolapse of the iris is.

Should a severe iritis be set up, it is obvious that the chances of getting a blocked pupil would be far greater in a case in which no coloboma existed.

No such marked difference can be drawn between the two groups where iridectomy is done. The fact that the cases in which preliminary iridectomy is performed contain such a much larger percentage of eyes in which previous disease has existed, prevents us putting the two side by side and comparing them. But, taking all things into consideration, it appears that there is but little to choose between the two.

ADVANCEMENT OF THE RECTI MUSCLES.

By DANID McKEOWN, M.D.,

OF MANCHESTER.

The fixation of the muscle to the conjunctiva has made the advancement of the recti muscles a satisfactory operation. Sometimes, however, cases are met with in which the conjunctiva tears so easily that the surgeon would desire to have something more reliable to depend upon. Such an experience about eight years ago led me to adopt for these cases a method which I have employed on several occasions. Instead of severing the muscle close to the eyeball I leave a small portion, sufficient for the placing of a suture, attached to the sclerotic; a single suture is passed (from within outwards) through this and the overlying muscle (drawn into position) and tied; the end of the muscle is then fixed to the conjunctiva in the neighborhood of the cornea by two sutures parallel to the extremity. The incision is vertical and near the insertion of the muscle. The suture through the tendon and the muscle, if it does not absolutely prevent tension upon the conjunctiva, reduces it to a minimum. Where there is no ground for misgivings about the conjunctiva I only use the two conjunctival sutures mentioned above.—*British Medical Journal*.

SOCIETY PROCEEDINGS.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

THURSDAY, DECEMBER 12, 1895.

EDWARD NETTLESHIP, F.R.C.S., President, in the Chair.

CLINICAL EVENING.

CASE OF RETINITIS CIRCINATA.

This was shown by Mr. Hartridge. It presented the appearance of a grey degeneration at the yellow spot, with a mass of white deposit in the nerve fibre layer of the retina radiating from the yellow spot region. There was no retinal hæmorrhage; it did not agree in every detail with the recognized appearances, but he thought it was possible an early stage of retinitis circinata.

MR. HOLMES SPICER thought that the character of the white exudation in this case was more like that of renal retinitis than of retinitis circinata. In all the undoubted cases that had been observed there had been a remarkable constancy in the character of the exudation, a grouping quite different from that shown in this case.

DR. HABERSHON asked if there were renal disease or hypertrophy of the heart present.

MR. HARTRIDGE replied that there was no renal disease; the heart had not been examined.

RARE FORM OF NYSTAGMUS.

MR. ERNEST CLARKE showed one case and Mr. Grimsdale three cases of nystagmus in the fixing eye on occlusion of its fellow. In Mr. Clarke's case the vision in the two eyes

together was $\frac{6}{vi}$; when either eye was occluded by placing a card in front of it, the uncovered eye immediately began to oscillate violently. In Mr. Grimsdale's cases the nystagmus was of the same kind but less marked.

DR. HABERSHON had examined Mr. Clarke's patient. There was no sign of actual nerve disease, but he was of a neurotic type; all his reflexes were rather more pronounced than usual.

DR. ORMEROD remarked that the patient was a jeweler, and had been using a single watchmaker's glass to one eye; he thought this may have partly caused the nystagmus. It was not present before he began that work.

SUPERFICIAL PERIPHERAL CHOROIDITIS.

A case of peripheral choroiditis of obscure origin was shown by Dr. Rayner Batten. The patient was a woman aged 40. The choroiditis was limited to the periphery; the outline of the patches was irregular, map-like; the deeper layers were not affected, but the surface layers had a bleached appearance; vision was almost unaffected except for slight contraction of the fields. No evidence of acquired syphilis could be found; the condition was probably a late manifestation of inherited syphilis. It was still progressing.

MR. HOLMES SPICER thought the cause of the disease in Dr. Batten's case was hereditary syphilis, on account of the white lines along the smaller veins, which was a common feature in that affection; for the same reason he thought it had been progressive comparatively recently.

EMBOLISM OF THE CENTRAL RETINAL ARTERY.

MR. MARCUS GUNN related the case of a young adult in whom this lesion occurred, without evidence of cardiac disease. About three weeks ago there was sudden failure of the left eye, with the appearance of a thick film before it, in a young anæmic girl. The vision had somewhat recovered in part of the field since. She was suffering from amenorrhœa at the time. Although there was not much change in the size of the arteries, there was the typical cherry-red spot at the macula. Although at first he regarded it as a case of embolism, he had since thought that it may have been a hæmorrhage into the

optic nerve sheath which had affected the vascular supply of the nerve

MR. HARTRIDGE had lately seen a case of embolism of the central artery in a healthy man two and a-half hours after its occurrence. There was already œdema of the retina.

DR. BICKERTON had seen a case recently in which there was very little appearance of change in the vessels. The pupil acted to light.

DR. BATTEN had recently seen a case of sudden failure of sight in an anæmic girl, in which there had been little change in the vessels.

MR. DRAKE BROCKMAN had seen some time ago a lady who had a sudden attack of giddiness; she lost the sight of one eye completely. There was no cardiac disease and no albumen, but the patient was anæmic.

RETROBULBAR OPTIC NEURITIS.

MR. HOLMES SPICER showed this patient, a healthy man, 68 years old, whose sight had been failing seven months. He had been a great smoker, but had given it up. There was no history of rheumatism, gout nor syphilis; no locomotor ataxy nor disseminated sclerosis, no renal disease nor diabetes. The optic discs were very pale and slightly swollen. The fields were quite full, but he had a large color scotoma at the fixation point. The case presented all the features of a severe tobacco amblyopia, but recovery had not followed abstention from the poison; he had steadily grown worse.

MR. GRIFFITH thought the pallor in this case was too great for tobacco amblyopia.

MR. JOHNSON TAYLOR thought it was an aggravated case of tobacco neuritis combined with alcoholism.

DR. HABERSHON thought that this case occupied a place midway between tobacco amblyopia and the family cases of optic atrophy described by Leber.

THE PRESIDENT said that cases were occasionally seen in which the action of tobacco did produce much more grave results on the nerve than was customary, and this generally occurred in old men. He thought it not improbable that this case might be one of tobacco amblyopia in an old man.

RECURRENT PARALYSIS OF THIRD NERVE WITH MIGRAINE.

This case was shown by Dr. Ormerod and Mr. Holmes Spicer. A boy, aged 15, had had complete paralysis of the left third nerve when a year old; recovery took place. When he was about 7 years old he had a second attack; since then he had had an attack every nine or ten months. He was subject to "bilious" attacks, with intense headache in the left side, and the paralysis always came on during a bad attack. There was some atrophy of the left optic nerve, and some of the paralyzed muscles have never recovered. The present attack was passing off, but there was still slight ptosis, a dilated pupil, and complete paralysis of the external muscles of the eye supplied by the third nerve.

DOUBLE PTOSIS.

MR. WARREN TAY showed a case of recent double ptosis with loss of convergence and weakness of the internal recti. There was no apparent cause for the attack; at first the movements of the eye were good, but complaint was made of diplopia; later the failure of convergence was marked. Recovery quickly followed the use of iron and nux vomica.

PARALYSIS OF BOTH INTERNAL RECTI.

This case was shown by Mr. Treacher Collins. A man, aged 22, had suddenly had paralysis of both internal recti five days ago, accompanied by headache. He was unable to move either eye towards the nose either in looking to one side or in convergence. The pupils acted normally, and vision was good; his gait was unsteady, his knee-jerks were exaggerated, and he became unsteady on standing with his eyes closed.

DR. TURNER remarked on the probable seat of the lesion in the two last cases.

OTHER CASES AND SPECIMENS.

1. Peripapillary Atrophy of Choroid of unusual character, shown by Mr. Donald Gunn. There was a patch of atrophy around the O.D., the retina over the patch being raised, distended, and perfectly clear, with shining lines in it like a cracked ball of glass.

2. Specimen of an Eye lost after removal of a foreign body by the electro-magnet, shown by Mr. Spencer Watson.

3. Specimen of Papilloma of Conjunctiva, shown by Mr. Jessop.—*British Medical Journal*.

SECTION OF OPHTHALMOLOGY, A. M. A., ATLANTA MEETING.

The following is a list of the papers promised, so far, for the meeting of the Section of Ophthalmology, A. M. A., at Atlanta, next May. The Chairman, Dr. L. Howe, and the Secretary, Dr. F. Allport, have been working hard to bring about a representative meeting. From this list they are evidently going to succeed. Those wishing to contribute should address either Dr. Lucien Howe, Buffalo, N. Y., or Dr. Frank Allport, Minneapolis, Minn.

Report of Special Committee on "Cases of Optic Nerve Atrophy of Obscure Origin." H. V. Würdemann, Chairman.

1. H. V. Würdemann—"Cases of Optic Nerve Atrophy of Obscure Origin, Occurring in General Diseases."

2. Geo. E. de Schweinitz—"Cases of Optic Nerve Atrophy of Obscure Toxæmic Origin."

3. Harry Friedenwald—"Cases of Optic Nerve Atrophy of Obscure Peripheral Origin."

4. C. W. Kollock—"Cases of Optic Nerve Atrophy of Obscure Origin, Occurring in Cerebral Diseases."

5. C. Dunbar Roy—"Cases of Optic Nerve Atrophy of Obscure Origin, Occurring in Spinal Diseases."

Report of Special Committee on "Detachment of the Retina, Its Etiology and Treatment." R. E. Randolph, Chairman.

6. R. E. Randolph—Subject Unannounced.

7. F. C. Hotz—Subject Unannounced.

8. E. E. Holt—Subject Unannounced.

9. J. E. Weeks—Subject Unannounced.

10. T. E. Murrell—Subject Unannounced.

11. Jno. F. Fulton—"Operative Treatment of Detached Retina."

12. L. F. Lane—"Report of a Case of Detached Retina, Occurring in Chronic Bright's Disease."

- 13 W. T. Montgomery—"Electrolysis in the Treatment of Detached Retina."
14. E. Oliver Belt—"Consanguineous Marriages, as a Cause of Retinitis Pigmentosa."
15. S. D. Risley—"Secondary Glaucoma."
16. Leartus Conner—"Causation and Management of Glaucoma."
17. Edward Jackson—"The Value of Homatropine in the Diagnosis of Ametropia."
18. T. E. Murrell—"A Study of the Visual Annoyances in Muscular Anomalies of the Eye."
19. Casey A. Wood—"The Field of Fixation in Its Relation to Heterophoria."
20. Henry Wilson Ring—"Three Cases of Monocular Vertigal Nystagmus."
21. F. T. Smith—"The Use of Caustics in Epithelioma of the Lids."
22. A. E. Prince—"The Treatment of Ectropion of the Lower Lid."
23. Lyman Ware—"Report of One Hundred Cataract Cases."
24. A. J. Erwin—"A New Needle for Secondary Cataract."
25. G. E. de Schweinitz—"Concerning Central Scotoma With Particular Relation to the Papilla, Macular Bundle and the Cortical Visual Centers."
26. E. J. Bernstein—"Sub-Conjunctival Injections."

BOOKS AND PAMPHLETS.

ANNUAL OF THE UNIVERSAL MEDICAL SCIENCES.

By CHARLES E. SAJOUS, M.D. Vol. V. Philadelphia, New York and Chicago: F. A. Davis Co. 1895.

This exhaustive work of reference, which reflects the greatest credit on the able editor and his excellent corps of associates has again reached us. We highly recommend it to all our readers, especially the able report on ophthalmology from the pen of Ch. A. Oliver.

STUDENTS' AID IN OPHTHALMOLOGY. By GERTRUDE A. WALKER, M.D. Philadelphia: P. Blackiston, Son & Co. 1895. Price, \$1.50.

This, as far as we know, is the first book of its kind written by a lady. Its mission as an aid to the student in ophthalmology, it is well calculated to fulfill. The style is clear and its arrangement very practical. The illustrations are few, but good.

SPECTACLES AND EYEGLASSES. By R. J. PHILLIPS, M.D. Second Edition, Revised. Philadelphia: Blackiston, Son & Co. 1895. Price, \$1.00.

To the praise we gave to the first edition of this practical little manual, we can only add, that the second edition is, in some respects, even better.

OPHTHALMIC METHODS EMPLOYED FOR THE RECOGNITION OF NERVE DISEASES. By CH. A. OLIVER, M.D. Philadelphia. 1895.

THE EXAMINATION OF THE EYE FROM THE STANDPOINT OF THE NEUROLOGIST. By CH. A. OLIVER, M.D. Reprinted from "A Text-Book on Nervous Diseases, by American Authors."

This little volume, as well as the pamphlet, sets forth to the student in a very clear and practical manner, what he should know of the eye symptoms in nervous affections, and details the methods of examination by means of the ophthalmoscope, etc., in a concise way. The student of these subjects can not fail to get a great deal of value out of either.

TRAITEMENT DES MALADIES DES YEUX. By DR. A. TROUSSEAU. Paris. Octave Doin. 1895.

In this little volume the author confines himself simply to the treatment, as generally adopted, of the affections of the eye, without going into any theoretical studies. It contains much that is practical and useful.

COLOR-VISION AND COLOR-BLINDNESS. A Practical Manual for Railroad Surgeons. By J. ELLIS JENNINGS. Philadelphia: F. A. Davis Company. 1896.

As we go to press, we have just received a copy of this excellent manual, for which we predict much credit to its author and a large sale. ALT.

"Cataract." By F. B. Tiffany, M.D.

"The Osteopathic Fad." By A. J. Steele, M.D.

"Lid Pressure on the Cornea." By Dr. G. J. Bull.

"A Series of Clinical Cases." By Ch. A. Oliver, M.D.

"Optometry by the Subjective Method." By Dr. G. J. Bull.

"Granular Lids; With Cases in Practice:" By A. B. Deynard, M.D.

"Exophoria Curable Without Operation." By G. M. Gould, M.D.

"Chronic Blepharospasm of Hysterical Origin." By W. Reber, M.D.

"An Additional Word to the Treatment of Exophoria." By G. M. Gould, M.D.

"The Aural Masseur in the Manhattan Eye and Ear Hospital." By Ch. Jackson, M.D.

"Inflammation of the Middle Ear with Involvement of the Mastoid; Report of Cases." By W. C. Bane, M.D.

"Conférence Internationale, Concernant le Service Sanitaire des Chemins de fer et de la Navigation," Amsterdam, 20 et 24 September, 1895.

MISCELLANY.

PROP. WICHERKIEWICZ has been called to Kracow.

PROF. SCHLEICH succeeds the late Professor Nagel in Tuebingen.

PROF. THEO. LEBER, of Heidelberg, was awarded the Graefe Prize.

THE TEXT-BOOK of Norris and Oliver is being translated into Chinese.

DR. EDWARD JACKSON, of Philadelphia, will spend the winter in Denver.

DR. T. INOUE, the well-known oculist of Tokio, Japan, died July 10, 1895.

DR. T. E. MURRELL, of St. Louis, has gone to Colórado for his health and expects to be away several months.

PROF. CZERMAK, whose excellent book on Ophthalmic Surgery we had occasion to review, is now Professor at the German University at Prag.

DR. HERBERT HARLAN has been elected Professor of Diseases of the Eye and Ear in the Woman's Medical College of Baltimore, in succession to Dr. Hiram Woods.

PITTSBURG has an Eye and Ear Hospital. Drs. Jos. E. Willets and C. A. Wishart are the Ophthalmic Surgeons in charge; Dr. E. W. Day is the Aural Surgeon, and Dr. E. G. Watson is the Histologist.

CHANGES AT THE PHILADELPHIA POLYCLINIC Dr. Howard F. Hansell, Adjunct Professor of Diseases of the Eye, has been made Professor; Dr. James Thorington, formerly Instructor in Diseases of the Eye, has been made Adjunct Professor.

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ORIGINAL ARTICLES.

OBSERVATIONS CONCERNING THE ENDO-
THELIAL LINING OF THE ANTERIOR
CHAMBER IN HEALTH AND DISEASE.

[WITH MICRO-PHOTOGRAPHS.]

By ADOLF ALT, M.D.,

OF ST. LOUIS, MO.

In the following articles I desire to acquaint our readers with the results of a prolonged series of investigations concerning the endothelium of the anterior chamber, viz., of Descemet's membrane, the ligamentum pectinatum, and the iris. It seems to me that this is a field which has thus far been treated rather slightly, as important as it is, for the full understanding of many pathological conditions seen clinically.

I shall illustrate the conditions described by micro-photographic reproductions from my specimens, although they do not come up to the ideal. He, who has worked in this field, will not be too harsh a critic, as he must well know the difficulties and disappointments which cling to this work. Yet, I think, that even a moderate micro-photographic reproduction is superior to a drawing by hand, in so far, that, when like mine, it is in no way retouched, it shows the actual conditions. Those familiar with the subject treated on, will understand

what is tried to be represented, even if the picture is not perfect from the standpoint of an artist.

I. THE ENDOTHELIAL LINING OF DESCMET'S MEMBRANE

The endothelium lying on the inner surface of Descemet's membrane has thus far been but imperfectly studied. The references to it found in literature, aside from text-books, are usually made in the descriptions of pathological conditions found during the examination of a diseased eye (Fuchs, Leber,



FIG. 1.—Shows the endothelium of Descemet's membrane in a high state of activity (unrest). Not only is the cell-protoplasma contracted in the most grotesque shapes, but the form of the nuclei also is very different from the one in cells when at rest.

Knies and others) and are, therefore, few and far between. I have made a series of systematic investigations concerning this tissue in a great many hardened human eyes, by removing a part of Descemet's membrane from the corneal tissue by a section, including as little corneal tissue as possible. I have found this to be a better method than to tear Descemet's membrane off, as is usually done. The transverse sections of this membrane are not calculated to teach us much.

The usual description of the endothelium of Descemet's membrane, as given in the text-books is, that it consists of a single layer of flat, polygonal (mostly hexagonal) cells, with a round or oval nucleus. These cells are described as lying closely adjoining each other with a cementing substance between them, which can be stained with nitrate of silver.

To a very similar description Walcever (Graefe and Saemisch, Vol. II, p. 203) adds the following, which he illustrates by a drawing:



FIG. 22.—Shows a state of affairs of the endothelial cells of Descemet's membrane less arranged than in Fig. 1. There is still a certain regularity preserved.

Seen in profile, the middle portion of these cells appears broader and somewhat protruded on account of the nucleus. In fresh specimens the outlines of the individual cells can

be easily seen, after a short immersion in hematoxylin or in a solution of iron chloride, by ashing. A very short impregnation with a 1 per cent. (1 or 1/2) of nitrate of silver also gives a good general indication between the individual cells. In all such openings as occur between the cells, the cells are stained. In specimens stained with hematoxylin or iron chloride, a general change in the outline of the cells is observed. They are rounded from each other and were quite smooth. It is not so, so that a number of specimens are stained with hematoxylin. I cannot say whether the procedure is correct. I have never seen such pictures of the body

This latter statement of Waldeyer's, important as it is, so far, seems to have aroused no desire for further investigation.

In a general way my observations agree with those of former authors. The endothelial lining of Descemet's membrane undoubtedly consists of a single layer of flat polygonal cells, with a round or oval nucleus. The more or less regularly hexagonal form of these cells, as often mentioned, and drawn from animals' eyes, particularly, is, however, but rarely found.



FIG. 4. — Descemet's membrane from an injured eye, removed two days after injury. Anterior chamber filled with fibrine containing pus and blood. Where pus cells and blood-corpuscles lie on the endothelial cells, these are seen to withdraw, so to speak, and make room for the intruders. Otherwise, the endothelial cells are still in a state of rest, although their nuclei show karyokinetic figures.

To this general description I have to add, that the shape and arrangement of the cells varies considerably with the age of the individual. In the eye of the newly born the nucleus is large and the cell-protoplasma very insignificant in quantity, so that the nuclei are very close to each other. With increasing age, the nuclei do not seem to grow smaller, yet the cell-protoplasma increases materially in quantity and an irregular arrangement of the nuclei results. Some lie close to each

other, others a very considerable distance from each other. With a certain regularity I find, that in the adult eye the cells are considerably larger and the nuclei farther apart near the center of the cornea. Near the periphery and just in front of where the ligamentum pectinatum begins, they are usually much smaller and consequently more numerous and their nuclei lie much closer to each other, although not as close as in the eye of the newly born.

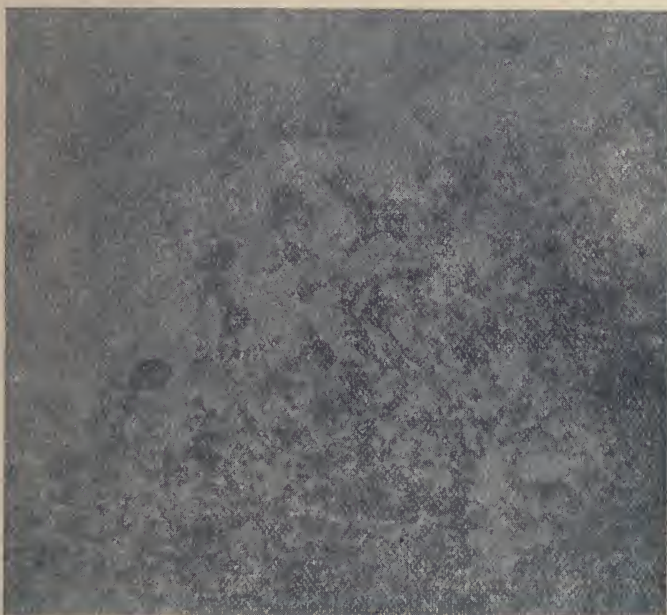


FIG. 5 - Obliteration of iris-angle (glaucoma). Descemet's membrane is unstained; its endothelium is, therefore, not visible. Pigment-cells are seen to creep forward between the endothelial cells from where the iris is attached to Descemet's membrane (lower right-hand corner). Patient, 36 years old.

The conditions here described, I consider as those in which the endothelial cells may be considered as being at rest. This is the condition which has usually been seen and described by the authors and which, strange to say, is just the one, I have found most rarely to exist in the human eyes, as I had occasion to study them. Indeed, quite frequently when I

thought I had a nice specimen of the endothelial cells at rest, I found with a better light and a higher magnifying power, that I had been mistaken. While Waldeyer, then, described the changes, above mentioned, as the exceptions from his observations, I, on the contrary, come to the conclusion, that the restless, or active, condition of the endothelial cells, if I may call it so, seems to be rather the norm, and the usually described condition of rest seems to be the exception.



FIG. 6.—Slanting section through the endothelial layer of Descemet's membrane near the periphery (patient 50 years of age). Hyaline warts have replaced the endothelial cells altogether.

The simplest variation from the condition of rest is one in which each cell is surrounded or outlined by a shining line, separating it from the neighboring ones. This corresponds to the black (cement ?) line produced by impregnation with nitrate of silver, and appears like the clear lines dividing the individual cells of the pigment epithelium layer of the retina. I think, it is the initial stage of the changes about to be described.

What Waldeyer saw exceptionally in specimens stained with hæmatoxyline, is the appearance of the endothelial cells under consideration, most frequently seen. I mean, the retraction of the cells from each other, leaving open spaces between them. The variety of shapes which the cells adopt during this condition of unrest, by the contraction of the cell-protoplasma around the nucleus, away from the neighboring cells, leaving only small threadlike connecting fibres, is simply undescrivable (see Fig. 1). In some cases a certain degree of regularity seems to obtain in the manner of this contraction of the cell-

round cells seem to coalesce and to form giant cells with many nuclei. (See Fig. 3).*

In other cases, when, as in injured eyes, pus and blood fill the anterior chamber and lie against the endothelium, its cells withdraw, so to speak, before the enemy, and make room for him, as seen in Fig. 4. This is, perhaps, even better illustrated, although this specimen is not stained and does, therefore, not show the condition of the endothelium of Descemet's membrane, by Fig. 5. Here pigment cells from the iris have crept on between the endothelial cells of Descemet's membrane to a considerable distance. This condition is very frequently seen, when the iris angle is obliterated and the periphery of the iris is agglutinated to the inner surface of the cornea, although I have not often seen these pigmented cells having wandered quite as far forward as in this specimen.

As is well known, vitreous warts (Hassal) are very frequently found to lie between the endothelial cells in the periphery of Descemet's membrane (see Fig. 6). These warts are, by many considered to be characteristic of adult or old age. This is, however, not absolutely the case, as I have seen them in several eyes of young children. In trying to learn the mode of their origin I have gradually become convinced that these vitreous warts are the result of a degenerative metamorphosis of the endothelial cells themselves and that each wart corresponds to such a changed cell. The process seems to be, that at first the cell loses its vitality. Instead of being able to contract its cell protoplasm like the neighboring cells, it appears rounded off and gradually its nucleus takes up less stain, and finally such a cell may at one time appear as a roundish, barely stained, amorphous mass lying between the surrounding cells. Gradually this amorphous mass becomes more and more homogeneous and forms the so-called vitreous wart (see Fig. 7). In so far the process corresponds exactly to the one seen in the pigment epithelium, where the warts are usually described as colloid excrescences.

From all this it appears, that we have in the endothelium of Descemet's membrane not, as the prevailing idea seems to be, a tissue which undergoes but little change during life, but

*FIG. 3.—This illustration not having been anyways successfully reproduced, will be given in our next issue.

on the contrary, a membrane in the cellular elements of which activity is rather the rule. This fact being, I think, established, it will well repay to go still further into the study of the life habits of the cells of this membrane. May be, that certain clinical pictures will find a better explanation and one founded on more palpable facts, than was hitherto the case.

[TO BE CONTINUED.]

OPHTHALMIC MEMORANDA.¹

BY G. E. de SCHWEINITZ, M.D.,
OF PHILADELPHIA.

RECONSTRUCTION OF THE UPPER LID BORDER BY HOTZ'S METHOD.

In a recent number of the *Annals of Ophthalmology and Otology*, Dr. F. C. Hotz, of Chicago described an operation suited to the cure of entropion of the upper lid with trichiasis, as follows:

"The lid border in split by the well-known intermarginal incision, which is made so deep that the anterior edge of the lid can be turned up with perfect ease. Next a transverse incision is made through the lid skin and the orbicularis muscle, just below and parallel with the upper line of the tarsal cartilage, and the strip of the muscular fibers which covers the upper border of the cartilage is excised, and the lid skin subsequently united with the upper border of the cartilage by means of three sutures. One suture is placed at the center of the wound and one at either side of the central one. Each suture passes through the edge of the lid skin, then through the upper border of the cartilage, and finally through the upper edge of the skin wound. When these sutures are tied the lid skin is drawn upward and fastened to the upper border of the tarsus. This traction upon the lid skin is sufficient to cause a thorough eversion of the anterior edge of the

¹Read before the Ophthalmic Section of the College of Physicians of Philadelphia, January 21, 1896.

split lid border, and when the anterior edge is thus turned up and separated from the posterior edge, the intermarginal incision becomes a gaping wound several millimeters in depth and with sloping sides. This groove is filled with a skin graft, preferably taken from behind the ear, as follows: A longitudinal incision, about one millimeter deep, is made as long as the graft is to be, then a second incision is made parallel to the first at a distance of two millimeters. The second incision is made to join the first one at both ends, and the narrow wedge-shaped piece of skin thus mapped out is dissected completely off and transferred to the wound in the lid border. The graft is spread out and gently pressed into the groove and the area thoroughly irrigated with a normal salt solution."

I have performed this operation in several instances and have been well satisfied with it. I present for your consideration this evening three cases:

CASE I.—The patient, a middle-aged woman, has been in the wards of the Philadelphia Hospital on several occasions. Some years ago I removed her right eye. It was a shrunken eyeball—a typical example of the so-called phthisis bulbi, which had become inflamed and painful. At that time she had a chronic trachoma of the left eye, and some opacities in the cornea, although the process was not a particularly active one.

She disappeared from observation, and reappeared within the last two months, presenting marked entropion of the upper lid of the left eye, the lesions of an old granular conjunctivitis on the tarsal conjunctiva and irregular opacities of the cornea the result of pannus, which was active when the trachoma process was at its height.

In addition to the inversion of the lid border, all of the cilia were misplaced and constantly rubbed and irritated the corneal surface, which was vascular, inflamed, and the cause of a marked photophobia. Vision amounted to light perception.

Dr. Hotz's operation was performed, according to the directions already quoted, the only difference being that preceding the transplantation of the graft I made an external canthoplasty. The dressing consisted of a piece of sterilized protective, over which was placed a pad of gauze soaked in

sterilized saline solution and held in place by a few turns of a gauze roller. When the bandages were removed at the end of forty-eight hours, the graft was found adherent throughout the entire length of the incision, the eyelashes were lifted well away from the cornea, and the photophobia was markedly diminished. The graft was not entirely perfect at the inner end, or, rather, I had not prolonged the intermarginal incision sufficiently far towards the inner angle. Therefore, a fortnight later, I implanted a small graft to cover this deficiency. As you may now see, the patient has a rounded lid border, the lashes, are lifted from the cornea and the photophobia has entirely disappeared. The vision is exceedingly defective on account of corneal opacities, but it amounts to about $\frac{6}{60}$ and the patient is able to get around without assistance—a marked gain over her previous condition of practical blindness.

CASE II.—A woman, aged about 65, long a resident of the Philadelphia Hospital, having been treated for a variety of complaints, namely, symmetrical necrosis of the malar bones, ectropion of the left eye, granular lids, most marked upon the right side, inversion of the lid border and trichiasis. For the last named condition certainly two, and I think three operations have been done. About three years ago I performed the ordinary Jæschke-Arlt operation; for a time the patient was better, but a relapse occurred. One of my colleagues performed one and I think two operations on her eyelids, the exact nature of which I am not sure. In November, 1895, the trichiasis, inversion, vascular cornea, constant irritation, etc., were as marked features as they ever had been, and therefore I advised the operation just described. It was done exactly according to the directions of Dr. Hotz, and has resulted, as you may observe, in a perfectly rounded lid border, and a normal position of the lashes.

CASE III.—A man, aged 48, was admitted to the Ophthalmic Wards of the Philadelphia Hospital in January of the present year, with the following history: Twenty years ago, while intoxicated, his right eye became inflamed after exposure to cold, and since that time has never been entirely free from irritation. He has had all manner of treatment and one operation, probably a canthoplasty. About the time of the

operation the cilia began to be misplaced and to rub against the cornea, and for twelve years he has been in the habit of pulling them out with a pair of forceps.

When examined the scars of an old granular conjunctivitis were evident, the cornea was vascular and very hazy, the ciliary border irregular, and most of the lashes misplaced and rubbing against the cornea.

The operation of Dr. Hotz was performed. When the dressing was removed on the second day, it was found that the graft had become adherent to the dressing at one corner and had assumed an unhealthy color. It was, therefore, removed from its position, and another somewhat larger graft cut from behind the ear and pressed into place. The usual dressing was reapplied. The transplanted skin became rapidly adherent, and the case, although not yet of sufficiently long duration to state positively, promises as fair a result as the others.

It is possible that the primary graft might have grown, but it did not seem worth while to run the risk of subsequent disintegration when a fresh graft appeared to offer better chances of success. I have employed this method in several instances of skin grafting and always successfully. Sometimes I have adopted Dr. Gifford's suggestion to remove the disintegrating epithelium and cover the surface with a Thiersch graft, and sometimes I have removed the flap itself and put a fresh one upon the delicately granulating surface which is then visible. Ordinarily in Dr. Hotz's operation, however, there is not much danger that the result will be otherwise than good. In the present instance the patient was in very bad condition, and the graft itself was somewhat narrower than the others which had been used, and therefore, its nutrition less perfect. Moreover, it was allowed to remain in the salt solution a much longer time than was judicious. In my experience this operation, if I may judge from a very few cases, promises most fairly, and has given me better results, and more rapidly, than any of the other operations which are commonly performed for the relief of this condition. I am inclined to cut the graft somewhat wider than the one described by Dr. Hotz, the width in each of the instances quoted being not less than three millimeters.

TWO CASES OF MACULAR HÆMORRHAGE.

CASE I.—*Iritis; Secondary Glaucoma; Iridectomy; Circumscribed Hæmorrhage Exactly Occupying the Center of the Dark Area of the Macula.*—During the first week in August, 1895, a woman, aged 50, a patient of Dr. Thomas Leidy Rhoads, after a severe attack of ovarian pain, developed iritis first in the right and later in the left eye. The attending physician used atropine for four days, when he noted elevation of tension and substituted eserine for the atropine, and asked me to see the case on September 17.

Vision in the right eye was counting fingers at three feet in the right eye and at two feet in the left eye. Both corneæ were steamy, the pupils semi-dilated and fixed, and synechiæ were visible in the right eye. A patch of lymph covered the capsule of the lens and prevented a view of the fundus. The treatment consisted, according to the condition of tension, of eserine, or, if tension increased, hot compresses, mercury and iodide of potassium, the last two drugs being pushed to the extreme as there was a clear syphilitic history.

Two months after the vision of the right eye was $\frac{6}{1X}$ and of the left $\frac{6}{2X}$. The remains of iritis were evident upon both sides, but no synechiæ could be seen. On the right side the eye ground out normal and there was no cup in the disc; on the left side there was a partially formed pathological cup. Tension of the right eye $+1\frac{1}{2}$, of the left $+2$. Three weeks from this date the remains of the iritis of the right eye had entirely disappeared, and after the correction of the refractive error, which was -3.75 S. -1.50 C. axis V, the vision rose to $\frac{6}{12}$.

The vision of this latter eye, in which the iris was still inflamed, and the tension remained $+2$, with the best correction did not exceed $\frac{6}{12}$, and the field showed no centric contraction. Iridectomy was done and performed on October 10th, without accident, although there was free hæmorrhage from the site. Hearing was perfectly normal, and inflammation and all inflammatory manifestations subsided.

One month later the patient reported with the vision of the right eye normal and in the left eye compensation of a scotoma in the center of the visual field. On examination with the ophthalmoscope the appearance, in the macula, of a water-burned fly. M. J. Hirsch, M.D., Washington, D. C., wrote:

namely, a small streaked hæmorrhage at the edge of the disc, and the dark area of the macula exactly replaced by a venous-colored hæmorrhage, with sharply cut borders. The reflex which surrounded the macular region was unusually distinct. Had this hæmorrhage been in the center of the fog-like œdema which is seen in embolism of the central artery of the retina, it would have appeared like an exaggerated cherry-colored spot.

At the end of a month the scotoma had disappeared; the vision was again $\frac{6}{xxii}$, and no remains of the hæmorrhage could be found, except a few faint dots and slight discoloration in the region formerly occupied by this extravasation.

As we know, hæmorrhage in glaucoma is not uncommon, and may appear in the form of single or double retinal extravasations, hæmorrhages into the cup of the optic disc, hæmorrhages into the iris, anterior chamber and into the ciliary body. I have never before seen a retinal hæmorrhage in glaucoma of just this shape and so curiously circumscribed, and for this reason report the case.

CASE II.—*Chronic Heart Disease; Oval Macular Hæmorrhage Exactly Replacing the Dark Spot of the Macula.*—

A woman aged 66 years consulted Dr. Robert Saunders in April, 1895, with the hope of obtaining glasses for improving her defective vision, which in the right eye amounted to $\frac{1}{2}$, and in the left eye about $\frac{1}{10}$ of normal. The right eye, after the correction of a hypermetropic astigmatism, regained normal vision and was in itself without notable ophthalmoscopic changes. In the left eye Dr. Saunders discovered the appearances shown in the water color by Miss Washington, which I exhibit, namely, a nearly round disc, with some pigment disturbance at the outer side, a slight physiological cup, no notable changes in the vessels, but in the centre of the macular region an oval area of reddish color containing a few white dots, and occupying almost exactly the middle of the macula. The halo which surrounded the macular region, that is to say, the macular reflex, was unusually distinct. Vision was unimproved by glasses. The peripheral field of vision was normal; there was a central scotoma five degrees on each side of the fixing point and three degrees above and below it. The patient had chronic heart disease and was subject to rheumatism. Otherwise she

was normal. It is my impression that Dr. Saunders told me that a subsequent examination of her urine proved this to be negative, although I have not made this note on my book.

I have not heard the subsequent history of this case, but report it in connection with the other as an example of similarly shaped, circumscribed macular hæmorrhage, due in this instance, I presume, to rupture of the finer capillaries which are not ordinarily seen. It is interesting to note that in both instances the macular reflex was unusually distinct. Indeed, in the second case it constituted an unusually brilliant white ring.

LACERATION OF THE LEFT EYEBALL; SUSPECTED RETAINED
FOREIGN BODY; ELECTRO-MAGNET OPERATION;
SUBSEQUENT HISTORY OF THE CASE.

James Dunn, aged 28, was admitted to the Methodist Hospital on April 16, 1895, about one hour after he had received an injury, which consisted of a laceration of the left eyeball by a piece of steel which had broken from a chisel which he was using. His fellow workman reported that a "good deal of white stuff" had run out of the eye.

When examined three hours after the accident the following lesions were found: There was a cut 2 cm. in length along the line of the left external rectus muscle, along the edge of which could be seen the dark border of the choroid. The pupil was widely dilated: there was a dim view of the fundus and a grayish streak passing upward and inward across the vitreous. Down and below a small dark mass was discernable somewhat resembling a blood clot. With + 3 D. the patient was able to count fingers and the visual field appeared to be intact. The eyeball was soft, and the resident physician, who had very properly carefully sterilized the conjunctival cul-de-sac and applied an antiseptic dressing, stated that while he was doing this much vitreous had escaped.

The patient was etherized and the point of an electro-magnet, connected with a two-cell cautery battery, was introduced three times within the eye, moved in all directions, and withdrawn with negative result. The patient had forbidden the removal of the eye. The wound was thoroughly sterilized, carefully drawn together, and a double figure 8 bandage covering a full antiseptic dressing was applied. At the end of two

days there was not the slightest reaction; the wound had closed, the eyeball assumed its normal shape, and almost its normal tension.

Six days later the vision was $\frac{6}{LX}$, and with the ophthalmoscope the disc was seen to be round and of good color, numerous fine dot-like and web-like opacities were seen in the vitreous, and far out in the temporal field a wedge-shaped shining patch representing the wound of entrance.

Not the slightest trace of foreign body could be seen. A few days later the patient brought to my office a piece of steel $1\frac{1}{2}$ cm. in length and about 1 cm. in breadth, which, it was alleged, his fellow-workmen had found in "the white stuff" which leaked out of his eye while he held against it a piece of waste immediately after the accident. The vision was now $\frac{6}{XXII}$, and the patient complained of double vision, a study of the images showing that there was paresis of the left inferior rectus. In two weeks the vision of the left eye had risen to $\frac{6}{IX}$; the vitreous was almost entirely clear and nothing could be seen with the ophthalmoscope except the triangular patch previously described. The tension of the eyeball was normal and all its functions perfect. The patient then disappeared from observation and was not seen for about a month, when he reappeared complaining of faulty vision in the left eye, which proved to be scant $\frac{6}{XV}$. The entire vitreous was filled with fine, web-like opacities, obscuring the eyeground, which appeared as if seen through a heavy fog.

Two points of interest center about this case: (1) The rapid recovery of an apparently hopelessly injured eye, so that in less than three weeks its functions were practically normal. (2) The insidious approach of a hyalitis, or, rather, the development of a hyalitis from the remains of the former traumatism to the choroid and vitreous. It is a good example of the primary recovery after large loss of vitreous, with the secondary changes that probably occur sooner or later in most of these cases.

HISTORY OF A CASE, IN WHICH FIVE YEARS
PREVIOUSLY A PIECE OF STEEL WAS
SUCCESSFULLY REMOVED FROM THE
VITREOUS CHAMBER BY MEANS
OF AN ELECTRO-MAGNET.¹

By CHARLES A. OLIVER, A.M., M.D.,
OF PHILADELPHIA, PA.

One of the Attending Surgeons to the Wills' Eye Hospital. One of the Ophthalmic Surgeons to the Presbyterian and Philadelphia Hospitals.

At about 5:30 P. M. on March 12, 1891, A. W., aged 35 years, a machinist, was sent from the Presbyterian Hospital to the writer, with the history, that twenty-six hours previously, whilst striking the edge of a steel bit with an old hammer, one of several minute pieces of the former (as afterward proved by the freshly fractured surface on the instrument) flew into his right eye. The foreign body caused but little or no pain, but immediately produced a "blood red" appearance before the eye which rapidly passed into "blindness."

Examination with oblique illumination showed that there was a small wound with a shred of epithelium attached to it, extending through the corneal membrane in its outer meridian just beyond the summit. A tear in the corresponding position in the iris-tissue was plainly apparent. The lens was wounded and was already swollen and translucent in places in its outer part. A slight, though dense and firm hypemia, could be recognized in the extreme periphery of the inferior angle of the anterior chamber. Intra-ocular tension was normal.

The ophthalmoscope revealed the presence of sheets of blood in the vitreous humor, these being most marked in the region of the injury. The eyeball itself was excessively irritable, both lacrymation and photophobia being present. Vision was reduced to the ability to see to count the examiner's outstretched fingers when they were held at two-thirds of a metre's distance straight in front of the eye. With the exception of a

¹Paper read and patient exhibited before the January, 1896, meeting of the Section on Ophthalmology of the College of Physicians of Philadelphia.

large irregular scotomatous area to the nasal side, the visual field for form was normal in size and in shape.

A few drops of a four-grain solution of sulphate of atropine were instilled into the conjunctival sac and a pressure bandage was applied. The patient was then sent to Dr. George Strawbridge, the Ophthalmic Surgeon of the hospital, who concurred in the writer's opinion that an immediate attempt for removal of the supposed foreign body in the vitreous should be made with an electro-magnet.

Next day, the patient was admitted to the surgical wards of the Presbyterian Hospital, and the field of operation was carefully prepared by freely washing the face and scalp with a 1/2000 solution of bichloride of mercury, and the conjunctival sac was freely douched with sterile water. The instruments were boiled and were kept immersed in a bath of alcohol. The patient was etherized, and at 3:30 P.M., just forty-eight hours after the accident, the writer, with the aid of one of his assistants, Dr. James Thorington, made a free meridional incision of about one-half a centimeter's length through the conjunctiva and lower outer quadrant of the sclerotic between the insertions of the external rectus and inferior rectus muscles. Through this opening, a narrow straight electrode carrying a current of thirty-five cells strength was introduced, and after a few carefully performed movements in the direction of the position of the supposed substance, a sudden impact was felt, which upon withdrawing the instrument through the outspread opening, proved to be caused by a piece of steel about a millimeter and a half in diameter; the adherent foreign body was thus extracted. The conjunctival sac was cleansed. Atropine was instilled and the eye was carefully bandaged. The patient was placed in bed.

Upon the following day, the scleral wound was firmly united. In six days' time, the eye was quiet, and four days later, the man was discharged from the house as an outpatient. A soothing wash of a saturated solution of boracic acid and two drops of a four-grain solution of sulphate of atropine were ordered to be used bi-daily.

On the twenty-sixth of the month, uncorrected vision equalled one-fourth ($\frac{5}{xx}$) and the patient could read the one diopter type from ten to forty-eight centimeters.

Five days later, it was noticed that the localized lenticular

opacities to the outer side had become slightly more dense, and seemed to encroach further into the pupillary area. The eye-ground could be plainly seen through the nasal half of the lens, showing a vertically oval disc of seven by eight diameters in apparent size, surrounded by a scleral ring with a line of blackish pigment situated beyond to the outer side. The disc substance appeared reddish-gray in tint, probably on account of being seen through some fine vitreous opacities. The last noting in the hospital records, three weeks later, states that the lenticular opacities had not increased and that the vision remained the same as at the previous visit.

Although many attempts were afterward made to find and restudy the case, yet it was not until one month ago, nearly five years after the accident, that a private case called at the writer's office with the assertion that the patient had recommended him for treatment. The patient was sent for and the ocular conditions were restudied.

At present, except upon prolonged exposure to strong illumination, the eye is perfectly white and quiet. Both the corneal and iris scars can be plainly seen. The lens is cataractous. The iris is freely mobile to light-stimulus thrown from various parts of the visual field. Light-perception is good in all parts of the field of vision. Intraocular tension is normal. The position and extent of the scleral cicatrix can not be recognized except by the strongest and most concentrated illumination. In other words, there is a practically quiet eye, from which, should ever occasion demand or the patient so desire, its opaque lens can be removed and useful vision re-established.

TESTIMONIAL TO JOHN S. BILLINGS, M.D., LL.D.—The American contributors to the Billings' Testimonial met at the Hotel Bellevue, Philadelphia, November 30, 1895. Addresses were made by Drs. S. Weir Mitchell, J. M. Da Costa, J. R. Chadwick, Robert Fletcher, A. Jacobi and William Osler. The testimonial consisted of a silver box which contained a check for \$10,000, and which had engraved upon it, "To John S. Billings, from 259 physicians of the United States and Great Britain, in grateful recognition of his services to Medical Scholars."

CLINICAL MEMORANDA.

AN UNUSUAL CASE OF CATARACT.

By FRANK ALLPORT, M.D.,

OF MINNEAPOLIS, WIS.

Professor of Clinical Ophthalmology and Otology in the Minnesota State University; President of the Minnesota State Medical Society, Etc.

Mrs. R. N. M., aged 51. Both eyes. In fair health. Complains of dimness of vision. Has never worn glasses. Up to 25 years of age had perfect eyes; at that time suffered severely from what was apparently a case of acute purulent conjunctivitis, followed by very weak eyes for about a year, at which time she noticed a decided and gradually continuing depart-



RIGHT.



LEFT.

The white markings in the pupillary spaces represent the lenticular opacities.

ure from her usual excellent vision. When about thirty years of age, she consulted Drs. Liedold and Knapp, of New York City, and Dr. Rider, of Rochester, N. Y., who all concurred in the diagnosis of hard cataracts and commented upon the fact of their occurrence at such an early period of life. She was advised to do nothing for her eyes, and consulted no one until the present time, November 14, 1895, when I was consulted. She declared her distant vision to be as good as ever, but complains of inability to use her eyes at close work, which, until recently, she has performed without difficulty, and which appears to be merely the evidence of advancing presbyopia.

I find her vision to be: Right eye $^{20}/_{cc}$. Left eye $^5/_{cc}$ Under homatropine. Right eye $^{20}/_{cc}$ —2.75 cyl. ax. 180° produces $V.=^{20}/_{LXX}$. Left eye $^3/_{cc}$, unimproved by glasses.

The best glass for near work proves to be +0.75 spher., which renders satisfactory service in the right eye, the left eye not participating in the work.

I have endeavored to reproduce the appearance of the two lenses in the accompanying drawings, and therefore feel it unnecessary to make additional comment, except to say that the opacities are principally in the anterior portion the lenses, and largely capsular.

As she is quite comfortable under her present circumstances and has become accustomed to her condition, I have advised her to leave her eyes alone, feeling it to be quite probable that she will never become any worse.

She was seen at my request, by Drs. Morton and Pineo, of this city. The case appears to be unique, because she is a woman of veracity and unusual intelligence, possesses two non-progressive, well authenticated cataracts of twenty-one years standing, and if we may add the four years occurring between the time of commencing visual impairment and her consultation with the three gentlemen mentioned—which I think may be safely done—the time may be extended to twenty-five years.

A CASE OF PROBABLE SPONTANEOUS ABSORPTION OF PART OF A CATARACTOUS LENS. DISLOCATION OF THE SMALL NUCLEUS INTO THE ANTERIOR CHAMBER. GLAUCOMA.

By ADOLF ALT, M.D.,

OF ST. LOUIS, MO.

J. H., 66 years old, had a ripe senile cataract extracted by me from his right eye, thirteen years ago. Healing was perfect and he is still enjoying good vision in this eye.

A week ago he came to consult me on account of his left

eye. When I had seen him last, ten years ago, this eye presented a semi-ripe cataract without any complication. Six years ago, he states, this eye was as blind as the right one had been before the extraction.

Two years ago, without any known cause, the blind eye became severely inflamed, but under treatment the inflammation subsided. Such attacks of inflammation with severe pain have come on, to his knowledge, five times, the last one having started five weeks before his return to me and having remained unabated since, in spite of eserine instillations ordered by his physician. To this statement of the patient his daughter added, that the grey spot which had for years covered the pupil "had fallen down" since the last attack of inflammation.

When I saw him, the patient was evidently worn out with pain. The lids were cedematous, the eyeball greatly injected, the pupil contracted *ad maximum*, and the tension, in spite of this, considerably increased. In the lower iris-angle, trembling, as did the iris, with every movement, lay a round amber-grey substance. Vision was reduced to perception of light, an ophthalmoscopic examination was impossible on account of the smallness of the pupil and the pain produced by the attempt. After several instillations of cocaine I made an attempt to extract the foreign substance, which I am convinced is the nucleus of the lens; but as soon as I grasped the conjunctiva a subconjunctival hæmorrhage occurred which increased rapidly to an alarming extent and gave the patient an enormous amount of pain. All I succeeded in doing was to make a scleral incision passing with the knife through the lens nucleus. Further steps the patient refused absolutely. Reluctantly I closed the eye up. He has since been free from pain.

Whether a dislocation of the lens occurred at first or whether the lens was dislocated by a glaucomatous attack, I do not know. I presume, however, that a partial absorption of the lens substance had taken place and that the capsule was ruptured during the last glaucomatous attack allowing the nucleus to fall into the anterior chamber.

OPHTHALMIC DIGEST.

By J. ELLIS JENNINGS, M.D.,
OF ST. LOUIS, MO.

OBSERVATIONS REGARDING EYESTRAIN AND ITS RELIEF.

EDWARD JACKSON, M.D., of Philadelphia, (*Medical News*, October 5, 1895):

There is a common impression that eyestrain is simply and solely a result of ocular defects—that without some ocular fault there is no eyestrain; and that the discovery of some marked anomaly of refraction, or of the ocular muscles, is the one thing needful to establish the diagnosis of eyestrain; and the correction of that error of refraction or fault of muscular balance is the sole and sufficient treatment of the condition. There are too many physicians who, suspecting a connection between the eyes and a chronic headache, come to the ophthalmologist and ask if the patient has any error of refraction, expecting the answer to settle all questions of pathology, and a pair of glasses to sum up the treatment.

Now, as a matter of fact, ametropia of any degree may be altogether unattended with eyestrain, and eyestrain can exist without any ocular defect. Of course, in a great many cases the two are intimately associated. Ametropia is perhaps the most effective and most common predisposing cause of eyestrain; and the mass of cases of eyestrain present ametropia sufficient in amount to be practically important. Nevertheless, ametropia and eyestrain are distinct conditions. One sees every grade of the various forms of ametropia in persons who use their eyes without eyestrain, and typical severe eyestrain although the eyes may be free from defect.

The various factors of eyestrain may be summarized thus:

First. Ocular defects, including ametropia, insufficient power of accommodation and (rarely) faults of muscle-balance.

Second. Improper requirements in the way of eyework, including excessive hours of eyework, excessive minuteness of

objects looked at, inferior illumination, imperfect adjustment of optic instruments, wrong position of the object, or wrong arrangement of hours of eyework and recreation.

Third. Defects of general nutrition, including chronic ill-health, the immediate and after-effects of acute specific disease, and diathetic influences.

Fourth. Imperfect organization of the nervous system or degenerative changes in it, including the influence of sudden changes in the amount or kind of eyework, and certain forms of senile decay.

These four classes include a host of individual causes which are to be borne in mind, and their relative importance carefully estimated in the study of a given case. Any narrower routine will at times result in unnecessary failure; but the narrower way of regarding the case is far too common. One needs constantly to remember that an ocular headache is not aggravated only by overwork; it may be aggravated, or even set up, by the recurrence of the menstrual epoch, by hunger, by anemia, by exhaustion of mind or body, or by the lowered character of the general nutrition after exhausting illness. And, conversely, it is not benefitted merely by lenses or prisms, atropin, or the dark-room; but by sleep, food, tonics, and all wholesome influences. On the other hand, it is an error equally serious to assume, because a headache is benefitted by a hearty meal, or a brisk purge, or rest from business, or a course of iron and strychnin, that eyestrain can have nothing to do with it. And the same is true of the other symptoms that we group under this general head of eyestrain.

To even a greater extent do these factors, other than the mere optic defect, influence the prognosis and the treatment. Age, especially as indicating the evolution or involution, present or prospective, of the nervous system, the tendency of the nervous system as regards habitual or recurrent pain; the state and prospects of general nutrition; the necessary requirements of occupation on the whole organism, as well as on the eye, must be considered before an intelligent prognosis can be given. And while the removal of the single causative factor will relieve some patients, the proportion of those relieved will rise with the skilful combating of every adverse and depressing influence. Glasses may be of value or essential, but so may be readjustment of eyework, improved general nutrition, or the

recognition of those bounds that the constitution of the patient sets on habitual effort.

The next point to which I would ask attention is that the intensity of the eyestrain is not directly proportional to the ocular fault that gives rise to it. The former may even seem inversely proportional to the latter. An ocular defect may give rise either to imperfect vision or to eyestrain, less generally to both. It is the higher degrees of ametropia that necessarily cause imperfect vision, while the lower, in which imperfect vision can be obviated by increased exertion, more commonly cause eyestrain. Then the prognosis as to the continuance of the symptoms complained of is the more unfavorable in proportion to the smallness of the ocular defect sharing in their causation. The factor of ametropia entering into the causation is the only factor that can be always and with certainty removed. In proportion as it is relatively small the share of the other factors less amenable to the measures at our command becomes relatively large, and our ability to give relief correspondingly doubtful.

Particularly after middle life do small errors of refraction or imperfections of adjustment cause severe and persistent strain. When the power of accommodation has so diminished that the correction of 1 D. of hyperopia is quite beyond its range, 0.25 D. of the same error of refraction may prove a constant provocation to painful effort on the part of the ciliary muscle, or an equal amount of inaccuracy in the adjustment of lenses may be equally injurious.

Another point worthy of attention is the complete difference in the effects produced by a perfectly accurate correction of ametropia, as compared with those due to a slightly inaccurate correction. The difference in relief given is often utterly out of proportion to the difference in the refracting power or axial direction of the lenses, but clinically the fact is well established. Perhaps it will help us to understand it to remember that if an emmetrope attempts to work with a pair of 0.5 D. concave lenses, the annoyance experienced is far greater than that usually felt by the hyperope with an error of 1.5 D. The ametropia proves most disastrous to the person not accustomed to it, and if one wears the wrong glasses the fault of focus that he has to contend with is always one to which he is not accustomed. If the inaccuracy be simply in the direction of a lower

crease of the original astigmatism may not be noticed by the patient between the two eyes, and thereby preserved. Yet even then the result can not be regarded as wholly satisfactory.

Finally, as regards relief of eyestrain through the use of spectacles, let me call attention to the practical importance of the *period of adaptation* to the use of glasses. In all English works on the subject this period of adaptation is almost entirely ignored. It is commonly supposed that the wearing of strong persons of convex lenses, comprising the total hypermetropia, at first cause blurring of distant vision, and sometimes it is mentioned that strong concave lenses may at first prove unsatisfactory for near work, but no adequate expression is given of the fact that nearly every pair of glasses, if of sufficient strength,

be adequate to the needs of the case, and of more than average strength, will at first cause discomfort and aggravation of some symptoms of eyestrain, or at least markedly less comfort than they will give when the eyes have become accustomed to working through them. It is a matter of the first practical importance that this period should be borne in mind by the patient fully warned of its existence and characteristic.

THE RETIREMENT OF DR. GEO. M. GOULD from the editorship of the *Medical News* is a great loss to medical journalism in America. His sound judgment, impartial criticism, clarity of purpose and scholarly attainments have won for him a reputation which has been well earned and is well deserved. In company with his host of friends, we tender to him our best wishes for his future successes.—*Medical Record*.

FOUR CASES OF GLIOMA OF THE RETINA IN ONE FAMILY.—Feinstein describes the following cases: Twenty-year-old boy 2 years old was operated on for a neoplasm in the eye, and some months afterward fatal relaps occurred. Two years later enucleation of an eye was performed on his sister for the same kind of growth, the patient being still living. A second sister, 7 years of age, was operated on four years ago, but died three months after from relapse of the growth. Last year a brother of these patients brought his 4-year-old daughter for examination, when it was found that she also suffered from glioma, enucleation being necessary.—*Gazeta lekarska*.

MISCELLANY.

ON THE NEW KIND OF RADIATION.

BY ARTHUR SCHUSTER, PH.D., F.R.S.,

Langworthy Professor of Physics and Director of the Physical Laboratory, the
Owens College, Manchester, Eng.

Professor Roentgen, of Würzburg, announces the discovery of remarkable photographic effects which he ascribes to a new kind of radiation. As the statements which have appeared in most of the daily papers are inaccurate in many respects, a short description of what Professor Roentgen claims to have accomplished may interest the readers of the *British Medical Journal*. The photographs which the professor has kindly sent me fully bear out his statements, and there can be no doubt that a most important discovery has been made.

It has long been known that the highly-electrified particles which are projected from the negative pole of a vacuum tube produce a strong luminosity (phosphorescence) when they strike against the glass walls of the tube. Professor Roentgen's discovery is that, in addition to this phosphorescence, another radiation is produced which is capable of penetrating through all bodies, though not to the same extent—thus, aluminium is more transparent to this radiation than Iceland spar. The radiation passes in straight lines easily through paper, cardboard, or wood, and produces photographic effects after having passed through two complete packs of cards.

Professor Roentgen shows a photograph which has been taken in one room, the tube producing the radiation being in another room, the rays having passed through the door. One of the photographs in my possession shows a complete image of a compass needle, with the divisions into degrees of the circle over which the needle is placed. The compass needle, before being photographed, was placed inside a metal box. As flesh, skin and cartilage are more transparent than bone, the photograph of a hand gives a complete outline of the bones of the hand and fingers, the outline of the flesh being only

very faintly marked. It is not necessary to enter into the many possible medical applications which this photograph opens out.

One characteristic feature of this new radiation, which distinguishes it from all effects so far known of radiant light and heat, is that it can not be refracted or reflected; that is to say, it will pass through a prism of aluminium having an angle of 60 degrees without being deviated from its original course. Hence lenses will not focus the rays, which will pass through a lens as they pass through an ordinary glass window. The photographs obtained are, therefore, of the nature of shadows, and their great sharpness is itself a testimony that the new radiation must be propagated in straight lines. The radiation produces fluorescence as well as photographic effects. Professor Roentgen does not give any information as to the length of exposure required, but any photographic plate or film seems to act. The photographs may be taken in ordinary daylight if the plate is kept in its dark slide, which will completely cut off all ordinary light rays and yet transmit the new radiation. It is, of course, at present impossible to say what this new radiation will turn out. Professor Roentgen throws out the suggestion that it may consist of longitudinal vibrations in the ether. One's first impulse is to ascribe it to vibrations of extremely minute length. But, in any case, the fact that the velocity of its propagation is the same in vacuo, glass and aluminum will be a puzzle to mathematical physicists.

PHOTOGRAPHY OF RETINAL IMPRESSIONS.

An article of much interest, by Mr. W. Inglis Rogers, appeared in the *Amateur Photographer* of November 22, 1895, under the startling heading of "Psychography or Photography Without a Camera. The Dawn of a New Science." In this article the following experiments are related: A small object, in one case a shilling, in the other a postage stamp, was placed in a good light before the writer, who gazed fixedly at it for one minute; the light was then shut off, and the test object re-

placed by a rapid photographic plate, at which the author looked steadily for a period (in the second experiment) of twenty minutes, concentrating his thoughts meanwhile wholly upon the image of the object he had been previously fixing. During the substitution of the plate for the last object, the observer's eyes were closed. The plate was then developed in the ordinary way, and reproductions of the psychograms are given the journal. In the first case, in which a shilling was the test object, the print shows an ill-defined circle on the plate, and in the second, when a postage stamp was employed (and a larger plate used than before) "two impressions were obtained, one from each eye, and at respectively the same distance from each other as the eyes." These impressions (in the reproduction) bear a distinct resemblance to a postage stamp; more than this we can not at present admit. These experiments, or similar experiments, can be carried out by anyone with a little assistance. The subject is one which merits most careful and thorough investigation, and by such research alone can we determine whether or no Mr. Roger's sanguine expectations in regard to his discovery are likely to be obtained.

RAMPOLDI'S SIGN.—Rampoldi claims that a transitory but recurrent (and unequal) dilatation of the pupils is an early and almost constant sign of the ordinary form of pulmonary phthisis, and that this pupillary anomaly results from an irritation transmitted by way of the sympathetic to the nerves supplying the iris.—*Medicine*.

YELLOW OXIDE of MERCURY OINTMENT.—Dr. S. Holth, of Norway, finds that decomposition of the ointment of yellow oxide, showing itself in grayish discoloration is dependent entirely upon the reducing effect of light passing through the more or less transparent walls of the ointment-pots in ordinary use. He therefore advises the use of absolutely opaque pots provided with similar covers.—*Arch. of Ophth.*

OBITUARY.

JAMES DIXON, F.R.C.S., ENG.

We regret to have to announce the death of Mr. James Dixon, who died at his residence, Harrow Lands, Dorking, on January 2, aged 82. He was one of the most accomplished and respected surgeons of his day. He was the contemporary of Bowman and White Cooper, and held a high position alongside of them. His high-bred manner and courteous personal bearing belonged to the best school of an earlier professional generation. Little seen and seldom heard in public, his opinion was valued and the weight of his personal influence was felt to an extent far beyond his public utterances.

He was at one time Assistant Surgeon to St. Thomas' Hospital, and was for many years Consulting Surgeon to the Royal London Ophthalmic Hospital. He was author of a "Guide to the Practical Study of Diseases of the Eye," which went to a third edition, and while resident at first in Green Street and afterwards in Portman Square he enjoyed a very large practice as an ophthalmic surgeon. In 1870, in consequence of the illness and subsequent death of his wife, he left London and gave up the active exercise of his profession. The last twenty-five years of his life were passed in retirement at Dorking, where he was ever ready with skilled advice and kindly help in cases of ophthalmic trouble among his poorer neighbors. Much of his leisure was devoted to the study of the English language, and he had a special acquaintance with English literature and history of the eighteenth century and of the earlier part of the present century. He qualified as M.R.C.S., Eng. in 1836, becoming a Fellow of the College in 1843.

His contributions to medical literature were unfortunately rare. He was an occasional contributor and constant friend and frequent correspondent, publicly and privately, of the *British Medical Journal*, and although the opportunities of such communications have been now for some years comparatively rare, he was a constant reader of the *Journal*, and from

time to time favored us with pleasant and interesting communications on literary and professional questions, in which we were always glad to be favored with his views and reminiscences. His loss will be felt by many old and early friends, although his contemporaries and associates have for the most part long passed away.—*British Medical Journal*.

EDITORIAL NOTE.

It is with great pleasure that we acknowledge the receipt of a considerable number of letters of congratulation on our assuming the whole management of this Journal and the appearance of the first number under the new rule. We trust that the subscription list, which has increased very markedly since January, will keep rising, so that we will be still better able to place the Journal in the shape we desire. It will be a greater source of gratification, yet, if the gentlemen engaged in ophthalmic literary work, will favor us with contributions.

BOOKS AND PAMPHLETS.

REPORT OF THE HOSPITAL FOR EYE-DISEASES, UTRECHT. 1895. (HET JAARVERSLAG VAN HET NEDERLANDSCH GASTHUIS VOOR OOGLIJDERS). No. 36.

Like its predecessors, this annual report of the Utrecht (Holland) Eye-Hospital contains a number of very interesting articles by its able surgeons. Part of them are, however, not new to us, as they have appeared previously in *Graefe's Archives*. A great deal of interesting matter is contained in the minutes of the Netherlandish Ophthalmological Society.

ALT.

"Blakiston & Son's, Philadelphia, Visiting List for 1896."

"Degenerative Heredity." By Ch. Denison, A.M., M.D.

"Physicians' Record-Book." By Flavel B. Tiffany, M.D.

"Clinical Notes of Cataract Patients." By D. Coggin, M.D.

"A New Operation for Congenital Ptosis." By T. C. Evans, M.D.

"Description for an Improved Trial-Frame." By Ch. A. Oliver, M.D.

"Astigmatism of Twenty-Eight Dioptics." By Ch. W. Dodd, M.D.

"Familiar Types of Insanity. Their Diagnosis." By J. Punton, M.D.

"Annual Report of the New York Ophthalmic and Aural Institute for 1895."

"Baltimore Presbyterian Eye, Ear and Throat Charity Hospital Report," No. 1.

"The Color-Sense and Color-Blindness, With Practical Tests for Color-Blindness." By W. H. Snyder, M.D.

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ORIGINAL ARTICLES.

OPHTHALMOPLEGIA EXTERNA COMPLETE WITH PRESERVATION OF ACCOMMODATION AND ACTIVITY OF THE PUPILS.

BY DR. S. C. AYRES,

OF CINCINNATI, OHIO.

Mr. E. J. L., aged 38, presents the following appearance: There is ptosis of both eyes. In the right eye the lid droops low enough to partly cover the pupil, but in the left eye it barely escapes the upper edge of the pupil. In looking forward the occipito-frontalis-muscle is brought strongly into action producing marked wrinkling of the forehead. There is absolutely no motion of any of the recti or oblique muscles of either eye. The pupils are active and respond normally to light. There is no weakness of accommodation, as he reads and writes without the aid of glasses. His vision is good in both eyes (0.7 R. and L.), and he has no trouble in seeing in the distance; has never had any asthenopic symptoms. He is a strong, healthy man and comes of healthy stock. He says that his maternal grandfather was similarly affected. His mother told him that the trouble with his eyes came on when he was six years old and was the result of scarlet fever.

There are two doubtful points in the history: first, as to whether the maternal grandfather actually had a similar affection of the ocular muscles; and second, as to whether the pa-

tient's condition was the result of scarlet fever as alleged. If the first statement is true, may it not be confirmed? If the first brothers and sisters, but none are similarly affected. If he had scarlet fever at 30 years of age, was this the immediate or remote result of it? No one living can give us any more information than the patient himself, and so we will have to accept his statement as the one believed by his mother.

The question of the etiology of ophthalmoplegic centers is one of the greatest interest and has received constant and prompt study everywhere. The origin of the fourth and fifth pairs of nerves has been the subject of investigation by many ophthalmists. The possible and probable changes in these nerves as they pass forward to enter the eye have been hemorrhage, granulation, pressure, etc., has received much and well deserved attention. The literature on this subject is abundant and rich, especially in regard to the pathological cases—but not so much in regard to cases like the above—when the extrinsic muscles are paralyzed and where the intrinsic muscles are intact.

One of the first cases to attract much attention by the profession occurred in the person of Prof. von Graefe, in Berlin, in 1831.

It was first published in *Archiv für Ophth.*, Vol. II, p. 299, as a case of Complete Paralysis of the Ocular Muscles and Ptosis of Both Upper Lids.

It occurred in a man only 25 years of age and was supposed to be due to an intra-cranial tumor, probably a tumor of the base of the brain. Both eyes became completely immobile, he having no voluntary power to turn his eyes in any direction. The eyes appeared prominently, were slightly divergent. He had suffered from diplopia but had finally overcome this by using only one eye. There was complete paralysis of the left levator palpebre superioris and the superior tarsal muscle of the right eye. The patient was completely accommodative in both eyes and was able to read the finest print at the usual range. There were no other visible comparisons between the two eyes except that of the patient's eyes to prove this.

Graefe considered that the case is a remarkable example of complete paralysis of the four extrinsic muscles, the normal activity of the intrinsic muscles being proved by the fact that the

activity of the ocular muscles was not a *sine qua non* condition for the integrity of the accommodative apparatus.

Since that time ophthalmology and cerebral pathology have made great advances and many points which were obscure are clearer now.

Gowers (Diseases of the Nervous System) says "that ophthalmoplegia externa is sometimes congenital and even hereditary. And he states that Hirschberg (*Berlin Gesellsch. Phys.*, June 8, 1886) has described a case of a man with congenital double ptosis and paralysis of all the ocular muscles, incomplete in the superior oblique and the internal muscles, whose mother presented a similar condition, while his own son had congenital ptosis and paralysis of the superior recti."

Noyes says that this disease "is sometimes congenital, although some congenital defects of the eye muscles are due, not to paralysis, but to absence of muscles or their incorrect insertion or imperfect development."

Romano-Catania (*Bull. d'Ocul.*, xii, 21) reports a case of congenital ophthalmoplegia externa of both sides with the exception of both superior obliques. The patient had M. 9 D. R., and 10 D. L.

Möbius relates in the *Klin. Monatsbl. f. Augenheilk.* Vol. xvii, a case of congenital atrophy of the ocular muscles.

The disease is occasionally seen when there is no well known cause to be assigned for it. Blocq (*Archiv. de Med. Experimen. Janvier*) saw a case of complete ophthalmoplegia in a woman about thirty years of age, in whom there could be discovered no etiological cause. The pupils reacted somewhat feebly to light but the accommodation was active.

While the disease is frequently progressive and perhaps generally so, yet it sometimes comes to a standstill.

Strümpel in his "Practice" says he has met with a patient with total bilateral ophthalmoplegia externa in whom this condition had existed without the slightest change for fifteen years.

Rumschewitsch (*Wjestnik. Ophth.*, 1883, No. 3) presents a compilation of 119 cases of ophthalmoplegia externa and says it may exist for years without complications. He states that in the majority of cases the sphincter iridis and ciliary muscle are not affected.

Uhthoff (*Tagebl. d. 59 Vers. deutsch. N. und Aertze in Ber-*

lin, p. 153) describes a case of a patient fifteen years of age, who had bilateral ophthalmoplegia externa and partial facial paralysis. There were no other cerebral complications.

The association of this disease with congenital defects in the development of the hands and feet has been observed by Gazepý.

In the *Arch. d'Oph.*, xiv, p. 273, he reports two remarkable cases. One that of a man, twenty-five years of age, who had congenital smallness of the index and little fingers of both hands and a webbed condition of both feet. He had double ptosis with paralysis of the superior recti and externi and with lagophthalmos. In addition to this there was in the left eye paralysis of the rectus inferior.

The other case was that of a girl, eighteen years of age, who had similar abnormalities of the hands and feet and ptosis of both sides. In the right eye there was paralysis of the rectus superior, inferior and internus; in the left eye paralysis of the rectus superior and externus with lagophthalmos.

Buch, in *Centralbl. f. Nervenheilk. und Psych.*, 1893, p. 57, reports a case of congenital double incomplete ptosis with a slight degree of right-sided divergent strabismus. Motions in all directions were very much limited. That the disease may be progressive after many years, is shown by the following: Hanke, in *Wien. klin. Wochensch.*, ii, 46, gives in detail the history of a woman, twenty-six years of age, with incomplete total ophthalmoplegia externa. Latterly there developed a paresis of the left and then of the right levator and almost at the same time a paralysis of the facial nerve.

Ophthalmoplegia externa completa is due to nuclear disease. Gowers says: "Paralysis of all the muscles of both eyes, internal and external, while theoretically conceivable from disease at the neighborhood of the orbital fissure and the optic foramen on each side, either in the orbit or within the skull, is practically met with in cases of nuclear disease."

No attempt has been made in this paper to mention the various phases of this disease which occur later in life, but only to record a few of the more interesting congenital cases. The cases are very various and cover a wide range of diseases.

Dalechow, in the *Zeitschr. f. klin. Mediz.*, xxii, reviews the literature on the subject and gives the following classification of diseases: They may be from, first, hæmorrhage, embolism

or thrombosis; second, syphilis, growth and softening of gumma: the origin can be central, nuclear or peripheral; third, from tuberculosis, rheumatism, influenza, meningitis, pneumonia, scarlet fever; from poisons: alcohol, nicotine and sausage; from tabes, multiple sclerosis, diabetes, Basedow's disease, gout, tumors, aneurisms and injuries.

A CASE OF RETINITIS PIGMENTOSA ASSOCIATED WITH CONGENITAL DEAF-MUTISM.

BY HOWARD F. HANSELL, A.M., M.D.,

OF PHILADELPHIA,

Clinical Professor of Ophthalmology, Jefferson Medical College; Professor
of Diseases of the Eye, Philadelphia Polyclinic, Etc.

It is with regret that we record our total ignorance of the etiology of acquired pigment-degeneration of the retina associated with optic nerve atrophy. The disease has mainly been ascribed to two causes, namely, inherited syphilis and consanguinity of the parents. In 4 out of a total of 44 cases observed by Leber (Graefe and Saemisch) no other cause could be assigned than a suspicion of syphilis; in 12 other cases there was a history of blood relationship of the parents; in 19 cases no cause could be named. Mooren and Nolden (quoted by Leber) attributed 25 %, Fuchs 33 %, to consanguinity. It will be seen from these quotations that intermarriage among kindred has much to do with the causation of this disease. But we are forced to limit ourselves to this general statement. Further research does not enlighten us as to why the offspring of such marriages are thus afflicted. We know, however, that they are occasionally subject to defects that are congenital, such as hare-lip, idiocy, supernumerary fingers, deaf-mutism, etc., in conjunction with retinitis pigmentosa and have thus some ground for believing that the ocular condition is also congenital, although the latter does not develop until many years after birth. Some authors assert that retinitis pigmentosa is always congenital, notwithstanding that its symptoms do not appear in infancy nor can its ophthalmoscopic signs be detected at that period of life, but that pathologic changes in

the retina and nerve have commenced at or before birth, and, advancing by extremely slow stages, become manifest years later.

The causal relationship of syphilis, hereditary or acquired, is even more obscure, although reasoning from analogy, we have little doubt that this is an important factor. Interstitial keratitis, spinal sclerosis, and optic nerve atrophy are often due to the insidious action of the syphilitic poison. They appear in early adult life, are slow in growth and lead to unalterable tissue change; and yet their connection with syphilis, and why the poison waits for years to show itself as a cause for organic lesions or why one child of a family is afflicted while others escape, is an unsolved problem.

The following case, briefly described, throws absolutely no light on the question of etiology and yet I believe from its negative qualities it has a certain value: B. S., a strong, muscular, well-built man of 33 years, the eldest of a family of several children, was born a deaf-mute. At 15 years of age, he commenced to see indistinctly at night and at other times, when the illumination was bad. The field of vision gradually grew less until at the time of my examination it included only the foveal region, and the acuity was reduced to perception of light only. Until a few months ago he was able to do the rough work on a farm and now is obliged to seek refuge in a blind asylum. He had learned the sign language, and formerly could converse freely with the members of the family, but lately, no longer able to see the signs, those who would talk with him must form the letters on some portion of his body, usually the hands, so that the characters could be felt. Thus he was able to understand as perfectly and nearly as quickly as formerly. There was no family history of consanguineous marriages among parents and ancestors. His father and mother were not even distantly connected. His brothers and sisters had no birth-marks, congenital defects, or other abnormalities. Moreover, there was no history of syphilis, congenital, inherited, or acquired. His mental faculties were in no wise clouded, and his physical strength and endurance were phenomenal. The ophthalmoscopic signs were typical of retinitis pigmentosa. The pigment patches were abundant throughout the entire fundus even up to the edge of the disc. The nerve-head was perfectly white and traversed by few

bloodvessels which could be followed but a short distance from the edge of the disc when they were changed into white lines. Both eyes were involved, as is always the case, and no difference in the degree of the degeneration could be detected. The pupils were moderately dilated and responded well to the influence of light and associated third nerve stimulus.

My information as to the history of the case was furnished by a brother, himself a large man and healthy in every respect. He assured me positively that there was no hereditary disease in the family; and that his parents were hard-working people, and that the case just recorded was the only exception as far as he knew to an extremely healthy family. Accepting his statements, confirmed by my own limited observation, as true, I am obliged to confess that I am entirely in the dark as to the cause of the disease in this unfortunate man.

REPORT OF A CASE OF MIND-BLINDNESS DUE TO CEREBRAL COMPRESSION.

By L. R. CULBERTSON, M.D.,

OF ZANESVILLE, OHIO.

Mr. L. M. Johnson, age 30 years, news agent. Was sent to me by his attending physician, Dr. C. M. Rambo, of this city. I did not test the visual field nor the pupillary reaction to light. The ophthalmoscopic examination showed: R. E., severe optic neuritis; inner half of disc obscured and outer half cupped and grey in color, the veins greatly enlarged and arteries small. L. E., the same condition as in the right eye, save that the neuritis is not so severe. Patient says he has pain in the back of his head. I diagnosed either glioma of the left cortex in parieto-occipital region; or circumscribed meningitis with adhesion in same region. Dr. Rambo put him on heavy doses of bromide and iodide of potassium, and later enormous doses of mercury and iodide without producing any benefit. Later he was under the treatment of Dr. Starling Loving, of Columbus, Ohio, who gave him the same treatment, but without benefit. He gradually grew worse and the pain became violent and constant, so that he could not sleep.

A month before his death acute meningitis developed. At

this time there was a spot on the left parietal bone corresponding to the convolution of the angular gyrus, at which he had constant pain and when pressure was exerted at this point, the pain was increased. The consulting surgeons, Drs. Rambo, Logsdon, and myself, advised trephining, but his wife was opposed to this. About this time when he would look at his friends and someone would ask him if he knew a certain person, he would say no; but if the person referred to would speak to him he would say yes and give his name. Yet if the same person saw him next day he did not remember him¹

We made no test as to hemiachromatopsia, nor word-blindness, nor agraphia, nor hemianopsia. There was no epilepsy or epileptiform seizures nor paralysis of motion or sensation. A few weeks before death he became delirious and soon after, from compression, developed paralysis of deglutition, etc.,

POST-MORTEM EXAMINATION.

Very thick calvarium. Dura-mater normal on right side; very greatly thickened on left side. Arachnoid greatly thickened on left side and vessels enormously enlarged. Enormous increase in sub-arachnoidal fluid. Sylvian vessels greatly enlarged on left side. Ascending parietal branches of sylvian vessels enormously enlarged. Considerable softening of occipito-temporal (left side) convolution and slight softening of angular gyrus and supra-marginal convolutions (left side). No softening at any other points either on cortex or at base, excepting that there was considerable softening of the optic tracts and nerves. Cerebellum normal. There was a deep depression in the frontal bone large enough to sink one's thumb in to a depth of one-eighth of an inch, and the inner table was depressed this much, but the brain tissue was perfectly normal at this point. This injury was received when he was a child. On inspection of the inner surface of the left parietal bone we found necrosis of the inner table covering a surface almost two inches square. At one point—corresponding to the seat of pain and tenderness on pressure—a surface as large as a quarter was so necrosed as to be translucent. This point lay over the occipito-parietal and supra-marginal convolutions. Bloodvessels normal in texture.

¹See Bowman Lecture, 1888, for similar case.

REMARKS.

In the history of this case there was nothing specific. No sunstroke. About a year ago he was struck on the back of his head while exercising in a gymnasium. Our belief is that this was the cause of the disease, and that it produced circumscribed meningitis and osteitis.

He had some aphasia before he became unconscious, but this was a distant symptom as the autopsy showed that the speech center was not softened.

This case would tend to substantiate the opinion of Swanzy² that the center for visual memory lies in the parieto-occipital lobe. The angular gyrus and supra-marginal convolution lie so close to this that it would have been impossible to determine which convolution was primarily affected, were it not for the fact that there was far greater softening of the parieto-occipital than of the angular gyrus and supra-marginal convolution. The occipital convolutions were not softened. It is to be greatly regretted that the pupil reflexes and visual fields were not tested sooner. When the pupil reflexes were examined—late in the disease—they did not respond to light in any part of the field.

EDITORIAL NOTES.

The reproductions of the photographs to my article in the February number, have been so absolutely unsatisfactory, that I have had them printed again on special paper enclosed in this number of the JOURNAL.

As the former publishers of this JOURNAL have kept no stock of extra numbers, it is impossible for me to fill all the many demands for missing numbers of the JOURNAL. If any of our readers could sell us the December number of 1894, February, March, August and September numbers of 1895, we should be very glad, as these numbers in particular do not seem to have reached some subscribers. Although I can not consider myself responsible for the shortcomings of the former publishers, I like, as much as is in my power, to make our subscribers satisfied.

ALT.

²Transactions of the Ophthalmological Society of the United Kingdom, 1888.

CLINICAL MEMORANDA.

A RARE FORM OF RETINO-CHOROIDAL DEGENERATION.

By J. ELLIS JENNINGS, M.D.,

OF ST. LOUIS, MO.

The following rare case of retino-choroidal degeneration was seen at Prof. Alt's Clinic January 31, 1896. It closely resembles three cases from the Clinic of Prof. Fuchs, of Vienna, reported by Dr. Colman W. Cutter in the *Archives of Ophthalmology*, July, 1895.

Mr. B., aged 49, has had poor vision since childhood, but managed to get along fairly well until about fifteen years ago, when he suffered from some inflammatory disease of the eyes

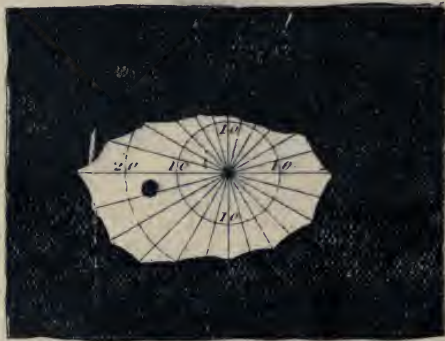


FIG. 1.

accompanied by severe pain and headache. He dates his bad sight from this attack and states that it gradually got worse until five years ago he was forced to give up his position in consequence.

He also had difficulty in finding his way about at night (nyctalopia). No specific history, inherited or acquired, was obtained. His father, mother, brother and one sister had good

eyes. The other sister, since dead, had bad sight which the patient imagines was much the same as his own.

Vision, O. D. $\frac{2}{cc}$; O. S. $\frac{3}{cc}$; not improved by glasses.

The refractive error is about -8.00 D.

The field of vision in both eyes is very much narrowed concentrically. Fig. 1 shows the limits for white in the left eye. The field for blue, yellow, red and green lie just within the white zone, in fact all colors are recognized almost as soon as white. In both eyes there is a posterior cortical opacity, quite dense centrally but still allowing a fairly good view of the fundus to be obtained. The ophthalmoscopic picture is peculiar and is alike in both eyes.

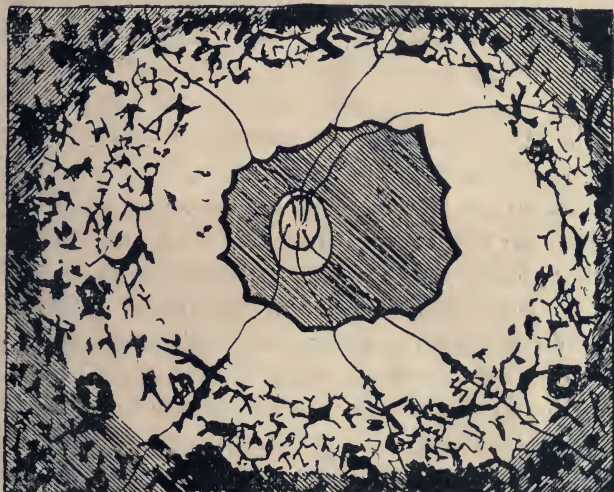


FIG. 2.

Fig. 2 is a drawing of the left fundus by the direct method. The optic nerve is pale and is surrounded by a rather large staphyloma. The vessels are narrow and with difficulty traced peripherally. Surrounding the disc and staphyloma is a normal zone of fundus which terminates abruptly in a glistening white zone of choroidal atrophy with clean-cut, scalloped edges. Beyond the white zone the fundus gradually colors into the normal hue showing here and there a few choroidal vessels. The diagonal lines in the drawing denote normal fundus. The atrophic zone and peripheral portions of the eye

ground are thickly covered with a fantastic meshwork of pigment which usually assumes the bone corpuscle shape so characteristic of retinitis pigmentosa. But in places are seen round or irregular blotches such as we find in choroiditis. If it is true, as some authors state, that atrophic changes are never seen in retinitis pigmentosa, then the case is evidently a rare form of retino-choroidal degeneration with pigment deposits closely resembling those found in retinitis pigmentosa.

FOREIGN BODY IN ORBIT: THE BILL OF A FISH.

By W. BURRELL THOMSON,

Surgeon-Major, A.M.S., York.

Lance-Corporal G. S., 2nd Battalion West Riding Regiment, while at a bathing parade in Barbadoes, W. I., on July 21, 1891, was struck by a fish. About half an hour later, on admission into hospital, he presented a small lacerated wound beneath the right orbital ridge, at the junction of its outer and middle thirds. On examination with the finger a rough body was felt embedded in the orbit. This required some amount of force for its removal, having apparently passed from the outer side downward and inward behind the eyeball, to be wedged into the bones on the inner side of the orbit. Some slight bleeding occurred from the right nostril on its removal. This foreign body was found to be a bill of a fish, two and a half inches in length; the greatest width was one-third inch, and it was armed with six teeth, the longest of which was one-seventh of an inch. The eyeball, which was intact, had been levered forward; it protruded considerably and was fixed and immovable. The conjunctiva on the edge of the globe was torn transversely. There was some ptosis. The pupil was widely dilated and reacted slowly. There was no vision except perception of light. The man was subsequently invalided from the service with loss of vision from atrophy of the right optic disc. Surgeon Major Whitehead, A.M.S., Assistant Professor of Surgery, reports that on his admission into Netley on April 18, 1892, there was found to be "marked atrophy of the right optic disc."—*British Medical Journal*.

OPHTHALMIC DIGEST.

BY J. ELLIS JENNINGS, M.D.,
OF ST LOUIS, MO.

SEROUS CYCLITIS.

N. C. RIDLEY. ("Royal London Hospital Reports," Vol. XIV, Part I, 1895) says:

This disease is known also by the names serous iridocyclitis or serous uveitis, according as the anterior part or the whole of the uveal tract may have been involved, and formerly was frequently termed descemetitis or keratitis punctata, from the presence of dotted opacities seen when light is transmitted through the cornea.

CAUSES.—The following is a list of causes of the disease given by authors: 1. Syphilis. 2. Sympathetic trouble after injury to the other eye. 3. Traumatism 4. Gonorrhœa. 5. Uterine disease. 6. Rheumatism. 7. Gout. 8. Diabetes. 9. Intra-ocular growths involving the ciliary region, including tubercle. 10. Spreading of inflammation from neighboring parts. 11. Following acute specific fevers. Besides those due to the above causes, many cases occur in which no cause can be found, and these are called idiopathic.

SYMPTOMS.—In spite of the wide difference of etiology, most of the cases present many points in common in their clinical history and course, and also in histology.

In all the well-marked cases there was great injection of the episcleral vessels, especially at the sclero-corneal junction, accompanied by more or less pain, ciliary hyperæsthesia, and loss of vision. On examination, the media were hazy and the vitreous was seen to contain floating opacities. The iris escaped in most of the cases, but when involved, exhibited the ordinary signs of iritis, viz., alteration of color, dulness of lustre, sluggish reaction, and contracted pupil. In some instances a total or partial paralysis of the ciliary muscle was present, and in others slight photophobia and lachrymation.

On examination with focal illumination a number of

graves are more noticeable on the posterior surface of the cornea, and are largely in the form of a thin, transparent, apical, and base downwards, but irregular, membrane on the surface, and which like soap, when of grease, all the cases which have been for some time were subjected to are the cause of pain, ciliary tenderness, and a tendency to increase intra-ocular tension, the iris being at 15 or 16-21. Those with high myopia could be divided into two groups, in one of which an extreme myopia shallower than usual, with as in pressure, increased, and the second in which chamber was increased in depth with a pupillary membrane. The increase of vision was at times seen in the earlier stages of the haziness of the media, but subsequently to the increase of vision and accompanying changes of retinal changes.

Explanation of Excess Arterial Blood

Swelling of the anterior chamber is seen when the iris is pushed forward, and the pupil is dilated. In most cases, the iris is altered through coming for a greater distance at the periphery. In the earlier stage of the disease the circumference of the iris is somewhat diminished by swelling of the ciliary processes, but later on it is again increased owing to the absorption of the processes from the rise of intra-ocular tension. The anterior and vitreous chambers contain albuminous fluid which is coagulated by the ordinary coagulating reagents, and can be recognized from the fact of striking a deeper stain with eosin than does the colloidal fluid in which the specimen is embedded.

On microscopic examination, the swelling of the ciliary body and processes is seen to be due to injection of the vessels, with exudation of lymph and leucocytes. There are also great proliferation of the epithelial cells, not only of the pars ciliaris retinal, but of the hexagonal pigment layer beneath, many of them being shed and, together with leucocytes, found loose in the vitreous chamber. The dulness of the media and opacities in the vitreous observed clinically are, no doubt, due to these, together with the exuded lymph. On looking at the suspensory ligament it can be seen that many of these epithe-

lial cells, and some of the leucocytes, having been carried forward with the lymph stream, have become entangled in the meshwork between the fibres constituting that structure. In consequence, additional obstruction has been caused to the exit of the intra-ocular fluid from the vitreous into the posterior chamber, through the already diminished circumlental space. The tension in the vitreous chamber has then evidently risen, and the lens been pushed forward, and subsequent events have taken place as in ordinary primary glaucoma.

Group II.—In this group the chief cause which leads to all the other anatomical differences is, that there is either very little or no proliferation of the epithelium on the ciliary process. Consequently the only solid bodies thrown into the lymph stream through the vitreous are leucocytes, and these can readily pass through the meshes of the suspensory ligament under ordinary conditions. These and other inflammatory products reach the posterior chamber, and are carried thence through the pupil into the anterior chamber. Here many of them being washed against the posterior surface of the cornea, and being more or less sticky, either from their own natural property or from the accompanying albuminous exudation, adhere, and on having become attached, others are attracted to adhere to it, and so little isolated heaps are formed and not a continuous sheet. These give rise to the dotted opacities on the cornea. By far the greater number of the leucocytes, however, are carried on in the lymph stream towards the angle of the anterior chamber, and here some of them may pass through the spaces of Fontana in the ligamentum pectinatum, and so get removed. But many of them do not escape, but becoming entangled in the filter, whose meshes are much finer than those of the suspensory ligament, cause a gradually increasing obstruction, accompanied by inflammation in that neighborhood. The primary obstruction occurring here at the outlet of the anterior chamber, pressure is exerted on all sides of that cavity, and so the iris and lens are thrust backwards, the angle is widened, and the whole chamber increased in depth. Pigmented cells may occasionally be found in the deposits on the back of the cornea, but they are never abundant, since in this group of cases there is very little proliferation of epithelium. In Group I, where the primary obstruction is at the suspensory ligament, leucocytes

can at first pass through that structure, and some of them adhering to the back of the cornea give rise to small masses just as in the second; these masses are never so large as those which occur in the latter, where the primary obstruction is in the spaces of Fontana, and where the anterior chamber is deep.

In the examination of an eye that has been blind for some time from secondary glaucoma of the kind spoken of in Group I, it is at first rather difficult to trace the sequence of events, as the lens and suspensory ligament are frequently in their normal situation. This I consider to be due to the following circumstances: The lens and iris are at first pushed forward, and the iris becomes congested and adheres to the cornea at its periphery, obliterating the angle of the anterior chamber, thus shifting the locus of the obstruction more forward. After the tension has been raised for some time, atrophy of the ciliary processes takes place, and the circumlental space is increased, and so the causes working at the original site of obstruction are diminished. In consequence the accumulation of pressure occurs as in Group II, in the anterior chamber; but the adhesion of the iris to the cornea prevents the former structure being thrust back again and the anterior chamber deepened, therefore the lens is being pushed back by itself to its original situation, and we have as a result, a deep posterior and a shallow anterior chamber. In other instances the anterior chamber becomes deepened, although the iris is still adherent at the extreme periphery, and the angle effectually occluded. The deepening of the posterior chamber and recession of the lens are also conducted to by the diminution of secretion following atrophy of the ciliary processes and compression of the retinal vessels and consequent lowering of tension in the vitreous chamber. Though some authors distinguish between the cyclitis which is serous, and that in which the exudation is plastic, no distinct line can be drawn, as in all cases in which the disease has persisted for a time the exuded fluid becomes plastic, even though it were partly serous at first. It is owing to the construction of this plastic material that another alteration in the anterior chamber occurs in old standing cases of Group II. This newly organizing tissue is chiefly found in the circumlental space, and so on contracting draws the root of the iris backwards, and laterally widens the an-

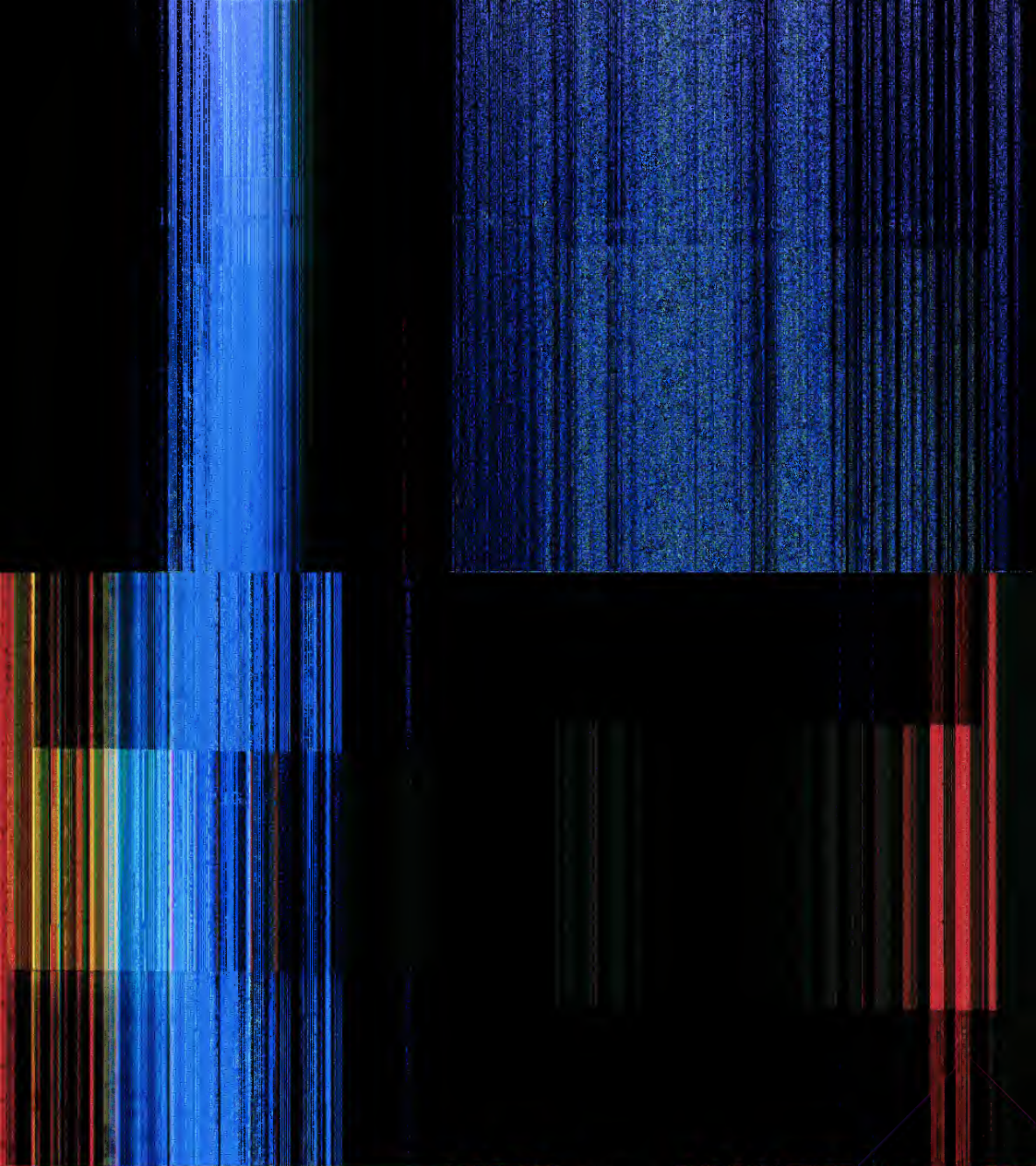


FIG. 4.



FIG. 7.



FIG. 5.



FIG. 6.



FIG. 8.

Similar Condition as in Fig. 2.



FIG. 2.

terior chamber; and being attached to the periphery of the retina behind, detaches that structure in a circular fold at the ora serrata. With regard to the collection of leucocytes and lymph on the posterior surface of the cornea, changes may occur in the cubical endothelium between them and Desce-met's membrane, but it is not the rule, and the layer is normal at the commencement of the deposit, and is still healthy if the deposit be early washed away, and the cornea may even in the most marked cases become eventually quite clear.

TREATMENT.

Iridectomy.—From a consideration of the causes of obstruction it will be obvious that, except perhaps now and then in cases of Group I, removal of a larger or smaller segment of the iris in the operation of iridectomy would be of no avail, either to stay the process of inflammation or to permanently reduce the intra-ocular tension; and in fact in consequence of the organization of inflammatory products near the irido-corneal angle in the process of repair more obstruction may be caused and the same condition rendered worse. Another danger after iridectomy is from the blocking of the spaces of Fontana by pigmented epithelial cells of the iris which may proliferate at the site of section and be set free.

Paracentesis.—It seems reasonable to suppose that the reduction of tension can best be effected by repeated paracentesis of the anterior chamber, so evacuating inflammatory products with the intra-ocular fluid. Probably the paracentesis should be done in front of, rather than in the sclero-corneal junction, so avoiding the extension of the inflammation at the site of the puncture to a part already damaged.

Eserine.—In some cases, the use of eserine is indicated, as for instance in the early stage of those in which the original obstruction is in the circumlental space; but it should not be persisted in if there be signs of the inflammatory process spreading to the iris, and it must be remembered that this drug produces congestion of the ciliary processes.

Mydriatics.—In the cases in which the anterior chamber is deep, a weak mydriatic (atropine gr. $\frac{1}{4}$ to $\frac{3}{4}$ j., or even less) may be circumspectly used, a careful watch being kept upon the tension. The objects of the treatment being to paralyze

the ciliary muscle and to dilate the pupil and prevent the formation of posterior synechiæ. I have seen exclusion of the pupil and "iris bombé" result in one case in which this had not been done.

Essentials in Treatment.—The main essentials in treatment are to give as complete rest as possible, *e. g.*, dark glasses, and the avoidance of near work, combined with attention to any general disease concerned in the causation.

Prognosis.—The prognosis, unfortunately, at present is bad, owing to the great tendency to recurrence, and in nearly every case the vision is permanently damaged to a greater or less degree.

THE IRIS AS A DIAPHRAGM AND PHOTOSTAT.

CHAS. F. PRENTICE, (*Annals of Ophthalmology and Otol-ogy*, Vol. IV, No. 4):

Under this title it is proposed to inquire into the value of sub-decimals of the diopter-lens in ametropia. In every compound lenticular system we are met with the necessity of providing against spherical aberration. This is accomplished in the construction of optical instruments, by introducing a diaphragm between the lenses to exclude peripheral rays. If the proper diaphragm be replaced by one of smaller aperture, we increase the definition, but diminish the extent of field and illumination and *vice versa*. The aperture of the diaphragm must therefore have a definite diameter for every optical instrument, if we are to secure *maximum* definition and illumination, *without aberration*. The proper diaphragm is therefore one of the most important and indispensable parts of every compound dioptric system. The human eye is such a system, and is provided with its diaphragm—the iris. In the eye, which is a dynamic apparatus given to variations of power, a fixed diameter of pupil would fail to theoretically fulfill the requirements. When the eye is in a state of accommodation, it becomes a stronger refracting system, and therefore needs a smaller aperture of diaphragm; hence the pupil contracts. It is universally admitted that the iris acts independently of, and

simultaneously with accommodation. When acting independently of accommodation, the iris is a highly sensitive photostat, regulating the volume of light upon the retina to such a degree as shall be most agreeable to our light-perceptive sense. A most suitable and synchronous balance, between retinal perception, uveal stimulus, and iritic response, must therefore exist, if the iris is to perform its functions simultaneously as diaphragm and photostat. An endeavor will here be made to support the hypothesis that *a disturbed equilibrium of these functions is probably the cause of asthenopia in low degrees of ametropia.*

We have thus far been content to know that pupils differ in size in different persons. There must, however, be a limit to the maximum diameter of the pupil, if aberration is to be excluded, and if, for any reason, the pupil is prevented from contracting to at least this limit, we shall have aberration even in the emmetropic, and which to all practical purposes, would be equally as effective in impairing vision as a low degree of myopia. This is undoubtedly one reason why errors of refraction of the same degree are not accompanied by the same diminution of visual acuteness. The myope of 1 D., with small pupils, *without* glasses, will probably have better vision than the myope of 1 D. with much larger pupils. Within certain limits, peripheral aberration and anomalies of refraction are analagous in destroying definition of the image. A slight error of refraction, with large pupils, may produce diffusion images equally as pronounced as considerable refractive error with small pupils. *Asthenopia is therefore quite as apt to be experienced on account of the size of the pupil, as it is on account of the error of refraction.* This should explain why it is that many persons, having small pupils, endure a considerable error of refraction without inconvenience, while others, with large pupils and small errors of refraction, are afflicted with asthenopia.

So far, we have no means of ascertaining the size, or that variation of the pupil which is necessary to establish the proper harmony between refraction, accommodation, illumination and freedom from aberration. The intuitive discrimination, which accompanies experience, is at present our only guide.

In refractive errors of low degree, which are relieved by

lenticular correction, the retinal perception is usually also very keen, thus increasing stimulus to contraction of the sphincter, while the correction in such cases frequently improves vision to $\frac{6}{3}$, which is far above normal.

The larger the pupil, the more pronounced will be improvement in visual acuteness obtained by low-degree corrections. The quarter-diopter lens rarely proves of benefit when the pupils are small.

Again, patients frequently wear such glasses for a time, relieving their asthenopia, and ultimately lay them aside, without feeling the necessity of their further use. Examination will nevertheless reveal the fact that the *optical error has not changed*. Closer examination, however, will frequently show that the pupils appear to be smaller at the time the patient has discarded his glasses, than when they were prescribed. The pupil being the only member seeming to have undergone a change, are we not justified in suspecting the iris, by reason of disturbed innervation, as having been at least implicated in the cause of asthenopia?

CONTRIBUTIONS TO THE KNOWLEDGE OF THE HISTOLOGICAL ALTERATIONS IN THE RETINA AFTER EXPERIMENTAL INJURIES.

DR. A. SEPLJASCHIN, (*Archives of Ophthalmology*, Vol. XXIV, No. 4):

The experiments were made on rabbits in the following manner: After pulling the eye either inwards or downwards with a pair of forceps, a discission-needle is plunged through the wall of the eye, five or six mm. from the edge of the cornea, avoiding injury to the lens. The needle is carefully run through the vitreous and by appropriate movement of the handle a cut is made in the retina. The eyes were enucleated at periods of from 22 hours to 285 days in a total of about 50 experiments.

The data obtained by our investigations show that after injury of the retina an inflammatory process begins in the region of the injury in which the retinal elements undergo

changes of both a progressive and a regressive character. Changes of the latter character are found at the point of most severe inflammation, both in the nervous and the visual elements. The progressive changes in the beginning are limited to regenerative processes, but a regeneration of nervous and visual elements that have been destroyed does not occur. The supporting framework, however, proliferates, but this never leads to union of the margins of the wound. There takes place an atrophy of the retina and the choroid in the region of the retinal wound, due to serous chorio-retinitis, after which the connective-tissue elements of the retina and choroid form a scar. In penetrating wounds the gap is closed mostly by proliferating epibulbar connective tissue, less by proliferation of choroidal tissue, and probably in small measure also by the wandering cells of the vitreous which become fixed connective tissue cells.

DIPLOPIA IN THE PERIPHERY OF THE FIELD OF FIXATION AND ITS BEARING ON THE DIAGNOSIS OF MUSCULAR PARALYSIS.

DR. A. DUANE, (*Archives of Ophthalmology*, Vol. XXIV, No. 4):

Dr. Duane's conclusions drawn from a large number of examinations of the field of fixation and of diplopia occurring in all parts of the field, are as follows:

- I. Diplopia occurring at the limits of the field of fixation (beyond 45° from the primary position) is physiological. It is not, however, by any means always present even there, and in any case is slight in amount, and in the same case often variable and inconstant. It may be due to a natural failure of one eye to keep up with the other in its excursion, or to the effects of projection, being in the latter case brought about by the rotation of the retinal horizon, real or apparent, that occurs in oblique positions of the gaze. But whether projection can produce any diplopia at all of the kind that I found in my cases is doubtful, and in any case the effect of projection in

producing vertical diplopia is very slight and makes itself apparent only at the limits of the field of fixation.

2. In a large number (probably the majority) of persons with normal eyes it can be proved that binocular single vision is still present even when the eyes are carried further than 45° from the primary position.

3. Well-marked diplopia occurring as a constant phenomenon within 40° of the primary position indicates a weakness or at least a want of balance of the eye-muscles. If this diplopia is still quite peripherally located, *i. e.*, occurs not less than 30° from the primary position, it indicates only a slight and, very likely, temporary muscular disability, such as may occur in neurasthenia, etc. As weakness from this cause is very apt to be symmetrical, the diplopia is often present to about an equal extent in all the oblique positions of the gaze, both to the right and left, and above and below.

4. A diplopia which begins to be apparent near the primary position and increases rapidly as the eyes are carried in any one direction, indicates a serious impairment of muscular energy, *i. e.*, a true paresis. The diagnosis will be confirmed if upon repeated examinations it is found to be constantly present and particularly if it shows a markedly unilateral character.

A CLINICAL AND EXPERIMENTAL STUDY OF THE SO-CALLED OYSTER SHUCKER'S KERATITIS.

R. L. RANDOLPH, M.D., (*Johns Hopkins Hospital Bulletin*, November-December, 1895):

Oyster shucker's keratitis may be defined as a traumatic keratitis where the injury is produced by a particle of the oyster shell. A minute particle of the shell is violently chipped off by the hammer that is used in the shucking process and flies into the eye. The particle is generally too small and too light to penetrate to any distance into the cornea. Large pieces, however, are sometimes detached and are driven through the entire thickness of the cornea, and when such a thing happens, happily rare, loss of the eye usually results.

Symptoms.—The photophobia is marked and there is a defined sensation of having been struck in the eye. This sensation is not usually followed by pain until some hours later. Frequently the exposure to artificial light in the evening of the same day will mark the time when the unpleasant symptoms begin. From now on the pain is usually intense, and the clinical symptoms resemble those of phlyctenular keratitis somewhat intensified. The disease is chiefly remarkable for the rapidity with which the cornea undergoes necrosis at the site of the injury, this area of necrosis being usually very small, owing no doubt to the small size of the foreign body. Small foreign bodies of copper, steel and sand usually produce no appreciable keratitis; and even when they lodge in the cornea, commonly require several days to cause a noticeable inflammation. On the other hand, the oyster shucker presents a marked infiltration at the point of injury within twenty-four hours after the accident. This decided reaction on the part of the cornea makes the injury a peculiarly dangerous one when a large area is wounded, these conditions being invariably followed by loss of the eye through panophthalmitis.

Bacteriological investigations failed to discover any specific organisms, which manifested any pathogenic properties when introduced into the corneæ of rabbits. The carbonate of lime, of which the oyster shell is almost entirely composed, was found to possess qualities irritating enough to call forth a keratitis when introduced into the cornea of a rabbit, and it is more than probable that several other chemical ingredients of the shell would be more or less irritating to the cornea.

It is certain that bacteria always play a part in traumatic keratitis, but it is evident that in this variety of traumatic keratitis the cornea is rendered especially susceptible to the effects of micro-organisms, by the irritating chemical ingredients of the oyster shell, notably the carbonate of lime.

Treatment.—The yellow salve has proved useless in our hands. The galvano-cautery was used in a certain number of cases, but it did not seem to exercise any specific influence for good, and the same can be said of eserine. A compress bandage and a mild sublimate solution ($\frac{1}{4000}$) used every four hours, together with an occasional drop of a solution of atropia—one per cent.—have given the best results. To this treatment the keratitis responds promptly, and in a week or ten days the

subjective phenomena have been so ameliorated that the shucker can resume work. The opacity can be detected by oblique illumination and is permanent.

BRACKET FOR TEST CARDS.

J. THORINGTON, M.D., (*The Philadelphia Polyclinic*, Nov. 9, 1895):

While the accompanying illustration is in great part self-



explanatory, it may be well to add that the bracket is made in two parts, *i. e.*, one small piece of polished oak board to each end of which is screwed a vertically placed brass socket; the other, a brass rod curved to a half circle and one inch of each end bent down to a right angle so as to fit evenly in the sockets on the board. From this description it will be seen that the bracket can be fastened to any convenient flat surface by means of screws passing through the oak. The cards are easily adjusted by raising one end of the rod out of the socket and slipping it through the round opening in the card.

Points of merit:

- (1) Many cards may be hung one over the other.
 - (2) The cards are always in place.
 - (3) There is no taking down or hanging up.
 - (4) The cards do not become soiled, bent or broken.
 - (5) When it is desired to change cards, all that is necessary is to turn the upper card on the rod, toward the left.
- Made by Wall & Ochs, Philadelphia.

WHICH NERVES GIVE RISE TO THE SENSATION OF PHOTOPHOBIA?

H. GRADLE, (*Annals of Ophthalmology and Otology*, Vol. IV, No. 4):

The following accidental observation proves that the sensory nerves of the cornea can be influenced by light under some circumstances, and that their irritation by light can cause photophobia:

Dr. B. became blind in the left eye during childhood, in consequence of a blow, causing white atrophy of the optic nerve. In October Dr. B. suffered of a circumscribed keratitis of the left eye, which under treatment rapidly improved. But in December there developed a small shallow ulcer, with gray floor, in the lower part of the still hazy cornea, which caused him more acute annoyance. During the time of acute irritation Dr. B. stated that the *blind eye was sensitive to light*. It presented the usual appearances of ciliary irritation, viz., ciliary injection, watering and partial closure of the upper lid. This partial ptosis, due no doubt to a reflex tonic contraction of the orbicularis muscle, was distinctly increased on exposing the eye to light, and lessened by relative darkness.

Moreover, Dr. B. *could tell promptly whenever I threw light into the blind eye* by means of a mirror in the dark room, the other eye being of course excluded. The sensation due to light was one of increased discomfort, not easily described in words, with a tendency to shut the eye. There was neither a sensation of light nor of warmth. After the disease had healed the eye was entirely unconscious of light thrown into it.

Conclusions.—1. The sensation of photophobia can be induced by sensory nerves without activity of the optic nerve.

2. That the nerve fibres involved are those of the cornea is most probable in view of the paucity of sensory fibres in the other ocular tissues and from the fact that photophobia occurs most frequently in diseases of the cornea.

3. The instillation of cocaine gives decided relief in photophobia by its action on the corneal nerves.

4. Our observation, however, does not prove that photophobia may not also be induced through the optic nerve. It is probable that the distress to which light can give rise in some diseases, and under some circumstances even in health is the result of an unusual activity of the optic nerve fibres.

THE OCULISTS' SIGHT TESTER.

This optometer, manufactured by the Optical Institute, London, 89, Hatton Garden, consists of a revolving mahogany disc, containing lenses from + or — 1 D. to 8 D., and of an extra metal revolving quadrant containing the fractions of dioptries, and + and — 8 D.; by combination of disc and quadrant lenses varying in strength from + or — 0.25 D. to + or — 16 D. can be obtained. By a single revolution of the disc and quadrant, these glasses can be rapidly passed in front of the eye. The apparatus can be used with the ordinary Snellen's types for distant vision; for near vision a test card on a movable arm is supplied with the instrument. For the use of spherical lenses only the optometer is simple, and handier than a test case; it will be found useful in the dark room in the application of the shadow test, as the change from one glass to another is made by a single revolution of the wheel. For the finer kind of refractive work, necessitating the use of cylinders, however, the instrument is not available; and the solid thickness of the disc and quadrant somewhat impair the accuracy of the results in lenses of high power, owing to the separation of the lenses from each other, and from the eye under observation. The cost of the sight tester is £2, 12s. 6d.

—*British Medical Journal*.

SOCIETY PROCEEDINGS.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

EDWARD NETTLESHIP, F.R.C.S., President, in the Chair.

THURSDAY, JANUARY 30, 1896.

THE VISUAL EFFECTS OF REFRACTIVE ERROR.

DR. GEO. J. BULL (Paris) read this paper. He gave an account of a series of experiments in which he had endeavored to reproduce with the photographic camera the effects of the different degrees of myopia, hypermetropia, and astigmia. The effect of a given error of refraction upon the photographic appearance of the test types was different in certain characteristic respects from the image seen by the eye. By further investigation he arrived at the conclusion that this difference was accounted for by the fact that there was in every case of refractive error an element of monocular diplopia, which he gave reasons for ascribing to the sectors of the crystalline lens. By adding to the photographic camera a lens which was itself divided into sectors he had been able to produce a photographic image of the test types closely analogous to the visual image with the corresponding error. A series of these photographs were presented at the meeting, and will appear in the *Transactions*.

THE PRESIDENT remarked that monocular diplopia was not a common complaint of patients with refractive error; if the phenomenon were constantly present it should be more common.

DR. BULL said it was always present even in children, but most people did not observe carefully.

UVEAL CYSTS OF THE IRIS.

This case was narrated by Messrs. EALES (Birmingham) and SINCLAIR (Ipswich). In a man, aged 47, the condition in

the left eye was one of absolute glaucoma, the result of a chronic non-inflammatory glaucoma of some years' standing. Extending into the pupillary area from behind the iris were two dark brown globular masses. These moved freely with every movement of the eyeball, and on close examination with a magnifying glass fine jelly-like quivering of the surface of each mass was noted. The diagnosis of cystic detachment of the posterior uveal layer of the iris was fully borne out by pathological examination. This was the first case, so far as the authors knew, in which cystic detachment of the uveal layer of the iris had been diagnosed clinically, though reference was made to other published cases in which this condition was probably present, and attention was drawn to the fine creasing and quivering of the cyst-wall as a diagnostic sign between this condition and pedunculated sarcoma of the iris.

Some remarks were made by MR. TREACHER COLLINS.

OPTIC NERVE ATROPHY IN THREE BROTHERS.

DR. F. M. OGLIVIE read this paper. The brothers were aged 24, 22, and 27; in the first one the sight was said to have failed in one night, in the second in three months, in the third in six months. They had all been smokers, but one had given it up more than seven years before. In all of them there was a central scotoma; in two there was defective color vision; in one only the visual fields for white were contracted. The ophthalmoscopic appearances were not very well marked in two of the brothers; there was pallor of the disc, but the atrophy was not of a very high degree in any of them; the vision was much reduced. One of them had improved somewhat under strychnine and galvanic treatment. A peculiarity in the brothers which they shared with others in the family was the tortuosity of their retinal vessels. So far as the family history could be traced there were no others who had optic nerve atrophy. The father and mother had good sight; the latter was one of ten, and there was no history of defective sight among her brothers and sisters. She had sixteen pregnancies, and fourteen children born alive; all the males except the three who were the subject of this paper had died in infancy.

Remarks were made by MESSRS. EDGAR BROWNE and JOHNSON TAYLOR.

CARD SPECIMENS.

The following were shown: MR. SIMEON SNELL, Alveolar Carcinoma of the Upper Eyelid. MR. C. D. MARSHALL, (1) Removal of Metallic Chip from the Vitreous by the Electro-Magnet; Result eighteen months afterwards; (2) Cholesterine in the Anterior Chamber. MR. W. ADAMS FROST, Peculiar Ring-Opacity of the Cornea. Messrs. HOLTHOUSE and BATTEN, Peculiar. (? congenital) Condition of Optic Disc in a Case of Choroido-Retinitis. MR. FISCHER, Extraction of Lenses in Buphthalmos.—*British Medical Journal*.

A MEETING OF WESTERN OCULISTS, AURISTS, LARYNGOLOGISTS AND RHINOLOGISTS has been called for April 7, in Kansas City, at the Midland Hotel, with a view of organizing a permanent society.

It is with deep regret that we chronicle the death of Dr. James P. Parker, editor of the *Annals of Ophthalmology and Otology*, at his residence in St. Louis, on February 1. After locating in the West he did little in the way of private practice but devoted his whole time and energy to the interests of the *Annals of Ophthalmology and Otology*, which he founded five years ago. His first knowledge of ophthalmology was obtained in the eye clinic of the late Dr. Little, of Philadelphia.

MISCELLANY.

CASE OF DIPHTHERIAL CONJUNCTIVITIS IMPLICATING BOTH CORNEÆ TREATED BY ANTITOXIN.

BY W. M. HAMILTON, MD., AND
Patricroft, Lancashire.

A. EMYRS-JONES, M.D.,
Surgeon, Manchester Royal
Eye Hospital.

On February 28, I found M. M., aged one year, suffering from a mild attack of scarlatina, with temperature 103° , rash well marked, and no throat symptoms. The rash disappeared, temperature fell, and desquamation began on March 4. On March 16, the upper lid of the right eye became swollen, the skin smooth and shining. The margins of the eyelids were red and there was photophobia. Next day the conjunctiva was very vascular and dotted with red spots. The left eye similarly affected. Ordered a sedative astringent lotion. Next day the lids could be everted only with the greatest difficulty; the conjunctiva was yellow, smooth, and infiltrated with a thick fibrinous exudation. I ordered lotio hydrargyri perchloridi 1 in 5,000 every hour. Next day the corneæ manifested an exudative opacity, and a marginal ulcer appeared on the right cornea, extending to one-sixth of its circumference. The bottom of this ulcer was covered with a yellow opacity. Dr. A. Emrys-Jones now saw the case with me. He diagnosed diphtherial conjunctivitis. He advised the application of nitrate of silver, gr. xx-3j every three hours, and that the eyes should be syringed with solution of boro-glyceride. On March 21, there was evidence of the throat being affected, a large diphtheritic patch appearing on the tonsil. That evening, by the advice of Dr. Emrys-Jones, I injected 10 c.cm. diphtheria antitoxin. By next next morning the temperature had fallen from 102° to 99.2° , the swelling of the lids was less and a piece of membrane was detached from the lids. I again injected the antitoxin, and again with marked improvement. The membrane disappeared from the throat and from the lids.

We still continued the application of nitrate of silver and boro-glyceride. On March 26, as there was a recurrence of the membrane in the throat, I again injected the antitoxin. From this time there was no relapse, and the cornea began to clear. The condition of both eyes at this time was inability to open the lids, great vascularity and redness of the conjunctiva, purulent discharge, and complete opacity of the corneæ. We continued the nitrate and boro-glyceride, and instilled atropine every two hours, substituting eserine at night and in the morning. The layers of the cornea separated and came away in the syringing. Unfortunately the infiltration of the right cornea was so deep that perforation took place. The left eye has cleared up entirely with the exception of a very small nebula at the lower margin, which is rapidly disappearing. The sight in this eye is perfect; the child can pick up crumbs from the floor, and can see the normal distance. The right cornea is also clearing, and we are hopeful that in time we may by an iridectomy restore full vision to the eye.

We report this case on account of the extreme rarity of preservation of sight in this fortunately rare and dreadful disease.—*British Medical Journal*.

BOOKS AND PAMPHLETS.

FUNCTIONAL EXAMINATION OF THE EYE. By J. HERBERT CLAIBORNE, Jr., M.D. With 21 Illustrations. Philadelphia: The Edwards & Docker Company. 1895. Price, \$1.00.

A very clearly written, neat volume, which we can highly recommend to students. ALT.

PAMPHLETS.

"Color Testing." By Ch. H. Williams, M.D.

"The Clinical Chronicle." By E. E. Sattler, M.D.

"Address in Otology." By Lewis H. Taylor, M.D.

"Rhinological Don'ts." By E. J. Birmingham, M.D.

"Nephritis of the Newly-Born." By A. Jacobi, M.D.

"Manhattan Eye and Ear Hospital Reports," January.

"Hypertrophic Rhinitis." By E. J. Bermingham, M.D.

"Nineteenth Report of the Buffalo Eye and Ear Infirmary."

"P. Blackiston, Son & Co.'s Physician's Visiting List for 1896."

"Affections of the Sound-Perceiving Apparatus." By E. B. Dench, M.D.

"Lumbar Puncture of the Subarachnoid Space." By G. W. Jacoby, M.D.

"Twenth-Seventh Annual Report of the Brooklyn Eye and Ear Hospital."

"Amblyopia from Suppression of Visual Image." By W. B. Johnson, M.D.

"Conservative Treatment of Wounds of the Eyeball." By L. H. Taylor, M.D.

"Seventieth Annual Report of the Massachusetts Charitable Eye and Ear Infirmary."

"A Case of Syringo-Myelia and Its Diagnostic Difficulties." By E. C. Runge, M.D.

"What Shall a General Practitioner do for an Acute Otitis?" By F. B. Dench, M.D.

"Transplantation of Skin in Plastic Operations on the Eyelid." By W. B. Johnson, M.D.

"The Treatment of Acute Inflammation of the Middle Ear and Mastoid." By E. B. Dench, M.D.

"Observations cliniques sur le traitement chirurgical du strabisme" (Clinical observations on the surgical treatment of strabismus). By E. Landolt, M.D.

PLATES TO DR. ALT'S PAPER.



FIG. 1.



FIG. 2.



FIG. 3.



FIG. 4.



FIG. 5.



FIG. 6.



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ORIGINAL ARTICLES.

OBSERVATIONS CONCERNING THE ENDOTHELIAL
LINING OF THE ANTERIOR CHAMBER IN
HEALTH AND DISEASE.

[WITH MICRO-PHOTOGRAPHS.]

BY ADOLF ALT, M.D., ST. LOUIS, MO.

[CONTINUED FROM FEBRUARY NUMBER.]

In the foregoing we have seen, that the endothelium of Descemet's membrane is, to say the least, easily thrown into a state of activity and proliferation into the anterior chamber.

I have at a former occasion depicted a large deposit of, what I considered to be, proliferated endothelial cells on Descemet's membrane, but the unsatisfactory staining methods of the other older specimens in my collection, do not allow of a photographic reproduction, and I can therefore only refer to the previous drawing. (Lectures on the Human Eye, p. 18).

Aside from the forms of proliferation, mentioned thus far in this paper, I have frequently seen the endothelial cells in the neighborhood of corneal wounds or ulcerative processes taking on an elongated shape and becoming gradually more and more spindle-shaped. This, in itself, it seems to me, points to the possibility of a new formation of connective tissue from these cells. Although this is doubted by some, I am thor-

oughly convinced of such a possibility. In a number of instances, I have, indeed seen the cells of Descemet's endothelium pass over into a newformed, distinctly but irregularly lamellated tissue, lying inwards of this membrane. This is, particularly, found in connection with anterior synechiæ of different tissues. Figure 1 shows such a newformation of lamellated connective tissue to both sides of an anterior synechia of the iris. It seems that this tissue is altogether derived from the endothelium of Descemet's membrane, although the endothelium covering the anterior surface of the iris may, perhaps, have participated in this formation. I have similar specimens in which the lens is held in a corneal scar and where such a newformed connective tissue ring, also, is seen around the point of adhesion, lying on Descemet's membrane. I have, furthermore, a number of specimens in which the vitreous body is adherent to a corneal scar and in which Descemet's endothelium can be traced for quite a distance backward on the cone formed by the adherent vitreous body, while just around the point of contact between Descemet and vitreous body a similar newformed ring of lamellated new connective tissue has been formed.

While in these cases, there remains a doubt, as to whether the endothelial lining alone, or perhaps at all, was concerned in the newformation of connective tissue, and while it is possible that some exudative material may have become organized in this place and Descemet's endothelium may simply have grown over this new surface, I think that Figure 2 must remove all doubts as to the possibility of a newformation of lamellated connective tissue originating from the endothelial cells covering Descemet's membrane.

In this case, in the first place a newformation of connective tissue on the inner surface of Descemet's membrane of very considerable extent has taken place. It reaches from the iris angle where it is very thick, forward to almost the center of an otherwise unaltered cornea becoming gradually thinner on its way. In the second place, not only does this lamellated tissue lie upon Descemet's membrane, but towards the anterior chamber it, in turn, is covered with another, evidently a newly formed, secondary membrane of Descemet, and this again is covered with endothelium.

In Figure 3, a part of this new tissue and secondary

Descemet's membrane are shown under a higher magnifying power, from near the junction of the two vitreous membranes.

From what, through Leber and others, we know concerning the healing of a small wound in the lens-capsule and from a number of similar observations of my own, I think, that this case shows, that Descemet's endothelium can not only form lamellated connective tissue, similar to the corneal tissue, but that it can form and, perhaps, originally forms the vitreous membrane which we call that of Descemet.

In looking through the literature on this subject I have found a number of references to the change of these endothelial cells into spindle-shaped ones, as well as of the formation of giant cells.

Leber in his exhaustive treatise *On the Origin of Inflammation (Entstehung der Entzündung)*, mentions the formation of giant-cells and goes on to say (p. 494): "More frequently new tissue was formed on the posterior surface of the cornea and on the anterior surface of the iris consisting of superimposed connective tissue cells which were flat, polygonal or spindle shaped and had long offsets. * * * Further on, thin layers of intercellular substance appeared between the cells, and gradually grew thicker while the cells disappeared. * * *

* * * "Many years ago Stricker observed processes of contractibility and cell-division in the endothelium of Descemet's membrane in cases of keratitis and the same faculty is acknowledged by all investigators to be possessed by new-formed connective-tissue and granulation cells; even Ziegler, contrary to his former belief, has more recently given this as his opinion. The question now is only, whether or not under certain circumstances lasting cell-products may take their origin from leukocytes. While most authors deny this, J. Arnold leaves it an open question. * * *

* * * "Where there was an endothelial proliferation in the anterior chamber, the transition from the normal to the proliferated endothelium could be readily recognized in surface views and transverse sections. * * *

* * * "In the latter case a distinct ring of proliferation of the endothelial cells of Descemet's membrane appeared at a short distance from the foreign substance." * * * etc.

In the first number of Vol. XLII, *v. Graefe's Archives*,

which I have just received there is, a most interesting paper by W. Uhthoff and Th. Axenfeld, entitled "Contributions to the Pathological Anatomy and Bacteriology of Purulent Keratitis in Man," in which changes very similar to those I have here described are mentioned concerning the endothelium of Descemet's membrane.

In a résumé of what they have found anatomically these authors say :

"The endothelium of Descemet's membrane was often loosened and absent, even when the membrane itself was, as yet, well preserved. * * * In places the loosened endothelia lay, like giant-cells in the anterior chamber in the hypopyon, in others a layer of leukocytes had crept in between Descemet's membrane and the endothelium, and lifted the latter off. Sometimes a distinct proliferation of the endothelium is visible, and this was especially found in cases of inoculation-keratitis in the rabbit, where larger wart-like newformations grew on the posterior surface of Descemet's membrane.

"The endothelial cells themselves showed often pathological conditions, as a breaking down, a swelling, or their nucleus could not be stained well, etc. A very extraordinary condition was found in Case V, where in one place the endothelial cells were shed and the single cells appeared very much enlarged, had long offsets, were star-shaped, had a large nucleus, etc., so that at first they appeared like enlarged corneal corpuscles, yet in proper specimens it was very clear that these cells took their origin directly from the endothelium of Descemet's membrane. They looked exactly like the proliferating endothelial cells as they are found, for instance, in the organization of thrombi in blood-vessels and which have been called formative cells by Ziegler (*Lehrb. d. allg. Path.*) who depicts them."

To these observations I want to add, that neither in these special investigations into the life-habits of the endothelial lining of Descemet's membrane, nor at any other time during innumerable examinations of pathological eyes, have I come across any specimen which would show, or even tend to show, that pus cells ever do or can pass through Descemet's membrane into the anterior chamber; their only way lies through the meshes of the ligamentum pectinatum.

II.—THE LIGAMENTUM PECTINATUM AND ITS ENDOTHELIUM.

Near the locality which is generally called the corneo-scleral margin, Descemet's membrane as such comes to an end. From there on backwards to the root of the iris the inner surface of the corneo-scleral tissue is covered by an intricate network of fibres of very much the same vitreous appearance as Descemet's membrane. Figure 4 shows a portion of this network detached, after having first removed the ciliary body and iris from the eye, by grasping the loose tissue with a forceps and pulling it towards the centre of the cornea.

I do not think, although others do, that there is any doubt, that Descemet's membrane at its periphery splits up into the fibres which form the ligamentum pectinatum and in Figure 5 this seems to be shown pretty clearly.

Attached to these fibres are a large number of flat endothelial cells, with preference at the angles made where the fibres join each other. These endothelial cells appear flat, like the cells of Descemet's endothelium and a little thicker in the centre from the presence of their round or oval nucleus. This shape varies much, but is usually roundish or oval; some of them have small offsets.

These cells do not, as far as I can see, form a continual covering all over the fibres, but lie mostly apart from each other.

Outwards from the ligamentum pectinatum lies the tendon of the ciliary muscle and its insertion into the corneo-scleral tissue. Posteriorly the fibres of the ligamentum pectinatum end in the root of the iris. This, of course, well-known fact, is well illustrated by Figure 6.

[TO BE CONTINUED.]

THE MIRROR FOR SKIASCOPY.

BY EDWARD JACKSON, A.M., M.D., DENVER, COLO.,

PROFESSOR OF DISEASES OF THE EYE IN THE PHILADELPHIA POLYCLINIC; SURGEON
TO WILL'S EYE HOSPITAL, AND SPECIAL LECTURER ON PHYSIOLOGICAL
OPTICS IN THE UNIVERSITY OF COLORADO.

The first essential for the mirror for skiascopy is a goop sight-hole. A good sight-hole is one which is as small as will

allow the movement of light and shade in the patient's pupil to be readily watched through it; and which is free from reflections.

The sight-hole should be small because it interrupts the reflection of light from the mirror into the patient's eye. When the point of reversal is brought close to the surgeon's eye by use of the appropriate lens, or the surgeon's eye is moved close to the point of reversal, the patient's eye being focussed for that distance, forms on its retina an image of the mirror before the surgeon's eye. In this image, formed on the patient's retina, the sight-hole of the mirror is necessarily represented by a small dark circle. In an eye free from aberration, with the sight hole exactly at the point of reversal this circle would be entirely dark. But as all eyes present in the periphery of the dilated pupil some aberration and irregular astigmatism, the unfocussed light entering through this part of the pupil gives a feeble illumination to this comparatively dark circle. The larger the sight-hole, the larger this circle, and the feebler the illumination of its centre; and the smaller the sight-hole the better the illumination.

As the point of reversal is approached the part of the patient's retina visible in the pupil grows smaller, until at the point of reversal a single point of the retina seems to occupy the whole of the pupil (see writer's monograph on Skiascopy, Chapter II). This point is necessarily within the circle of feeble illumination on the patient's retina. On this account the light area to be watched in the pupil appears comparatively dim when viewed from the point of reversal. The aim must always be to make it as bright here as possible, hence the need for a small sight-hole.

Were the sight-hole as large as the source of light, the illumination would be liable, when the reflection came from the central part of the mirror, to suddenly disappear from the patient's pupil in a very puzzling and annoying way. But the source of light should be as small as practicable to bring out most distinctly the characteristic appearances of astigmatism, or the differences of movement in different parts of the pupil. Here is another reason for a small sight-hole.

Again, the rays emerging from the patient's eye are focussed at the point of reversal. When the surgeon's eye approaches this point, these rays can no longer be focussed on

the surgeon's retina, but form thereon circles of diffusion, which cause the light area at its margin to shade off very gradually into the shadow, and make it difficult to recognize the direction and character of the movement of light and shadow exhibited in the patient's pupil. The size of these circles of diffusion is directly proportioned to the size of the sight-hole. Hence the smaller the sight-hole the more definite and readily distinguishable the movement in the pupil from near the point of reversal.

The limit below which the sight-hole can not be diminished has already been indicated, as that just allowing the surgeon to watch the movement of light and shadow. Exactly what this may be will vary with the conditions under which the mirror is used. The more complete the surrounding darkness, the easier it is to see the light area on the face and the light area in the pupil; and the smaller the sight-hole may be. The writer has used with most satisfaction a sight-hole two millimeters in diameter. A still smaller one may under favorable conditions be found satisfactory by the expert. But one not very familiar with the test will probably do better with a somewhat larger sight-hole.

Reflections from the margin of the sight-hole are bad in any ophthalmoscopic mirror. They cause circles of diffusion on the retina so large as to fill the whole field of observation with a luminous haze, which renders more difficult the seeing of any object. In skiascopy this is particularly detrimental because the things to be watched are at best somewhat difficult to see; and the presence of such a haze necessitates increased size of the sight-hole. In purchasing a mirror the freedom of the sight-hole from reflections is one of the principal things to be tested. Its importance is not sufficiently appreciated by those who supply such instruments, and the best are in this respect, short of the ideal.

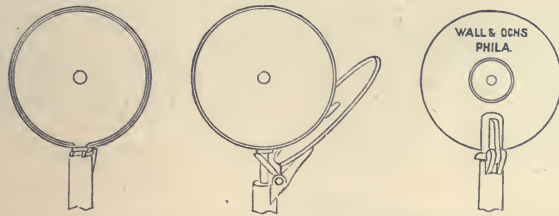
The *size of the mirror* for skiascopy is a matter of less importance, yet one that somewhat influences the convenience of using it. The wider the mirror the wider the excursion that the light area can be caused to make on the patient's retina. When the retina is comparatively little magnified, when the surgeons' eye is far (measured in dioptries) from the point of reversal, as with high uncorrected ametropia, the wide excursion of the light area may be necessary to render clear what

the movement seen in the pupil really is. To meet such requirements, a large mirror is necessary. In high astigmatism the mirror, even when placed at the point of reversal for one meridian, is considerably removed from the point of reversal of the other principal meridian, so that some considerable width of mirror is necessary to bring out movement in the latter meridian. The wide mirror will serve under these conditions where a small mirror would be useless.

Close to the point of reversal, however, the magnification of the retina is such that only a very small part of it occupies the whole pupil, and this very small portion of the retina can only be illuminated by light reflected from a very small part of the mirror immediately around the sight-hole. When the reflection falls upon the patient's eye from some other part of the mirror, the pupil under these conditions appears dark. Hence with a large mirror throwing a large area of reflected light upon the face it becomes necessary to keep a particular part of the area upon the eye, and this is the more difficult the larger the area. For controlling the movement of the light areas when working near the point of reversal a small mirror is more convenient. This becomes of great importance when the source of light is brought close to the mirror, as it must be for accurate testing with the plane mirror. As the great part of the work with the shadow-test is done near the point of reversal the convenience of working there must be considered.

In seeking the greatest convenience at the point of reversal we must not discard the wide mirror, but may well cover the part of it that is for the time useless. Two mirrors, a wide and a narrow one could be employed; but as even the narrow one must have a back wide enough to exclude side light from the surgeon's eye, the single mirror with a cover is simpler. A mirror of this kind 38 mm. in diameter, with a cover that excludes all but the space, 10 mm. in diameter, around the sight-hole, has been chosen. Such a mirror with a very convenient arrangement for removing the cover to the back of the instrument and retaining it entirely out of the way, is shown in the accompanying figures. It is made by Wall & Ochs, of Philadelphia. In using it, if the refraction of the eye has been previously approximated, as by the ophthalmoscopic examination, and the proper lens placed before the eye, and if the astigmatism

is not high, the cover is kept before the mirror and only the central part of the latter employed. When the error of refraction is of high and unknown degree, or in the determination of the meridians of high astigmatism, the cover is turned back out of the way, and the whole width of the mirror is used.



The sight-hole of the mirror may either be cut through the glass, or merely scraped in the silvering. In the former case there will always be some reflex from the margin of the sight-hole; and the sight-hole only through the silvering is better so long as the glass opposite it is kept perfectly clean. But particles of dust will lodge on this glass, and it is rather difficult to remove them all from the margin of the sight-hole, without encroaching on the margin of the silvering and so enlarging the sight-hole. With the glass removed at the sight-hole this difficulty is prevented.

What has been said applies to either the plane or the concave mirror. When one has at command the proper source of light, a flame covered by an opaque shade with a small aperture, the plane mirror is to be preferred. But when one is compelled to use an unshaded flame that must be placed back of the patient, the concave mirror will commonly be found more serviceable.

It should be borne in mind that one can use a concave mirror, as a plane mirror is used, and that it will act exactly as plane mirror, by bringing the original source of light within the principal focal distance of the mirror. The immediate source will then be a virtual image of the original source back of the mirror from which rays diverge, as they do from the virtual image back of the plane mirror.

A NEW FORM OF PERIMETRIC LENSES.¹

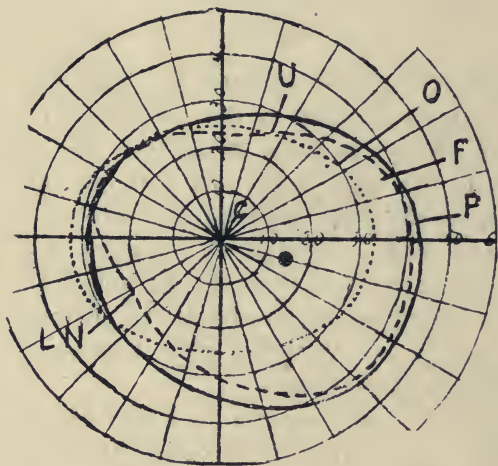
BY JAMES THORINGTON, M.D., PHILADELPHIA, PA.,

ADJUNCT PROFESSOR OF DISEASES OF THE EYE IN THE PHILADELPHIA POLYCLINIC
AND COLLEGE FOR GRADUATES IN MEDICINE, ETC.

The accompanying drawing shows:

O, The outline of the spectacle lense in ordinary use.

F, The normal form field of vision, reduced one half from the regular perimetric chart.



U, The indentation in the upper part of the field.

I, N, The indentation in the lower nasal part of the field.

P. The outline of the perimetric lens, which will be seen to conform in full to the normal form field of vision and at the same time an addition is made at U for the purpose of symmetry, and at L N, for symmetry and also for use when the eyes converge at near work. In fact the perimetric lens here shown takes in the full normal field of vision, which gives it its name and shape, and at the same time prompts two reasons for its recommendation, namely:

FIRST, and most important, it gives to the eye that lens

¹Shown and described by invitation to the Section in Ophthalmology of the College of Physicians of Philadelphia, March 17, 1896.

which is consistent with the normal form field of vision, and

SECOND, the edge of the lens is sufficiently removed not to be noticed to any extent by the eye when fixed straight ahead.

The seeing of the edge or edges of the lens being a subject of complaint by many patients who are now wearing the oval lens (see O, in drawing). Point C, in the drawing, is the center of the ordinary lens, and is made to correspond to the center for the perimetric lens (P), and the point of fixation in the field (F). A careful study of this drawing demonstrates the merits of the perimetric lens (P) over the ordinary (O). At first thought, several objections to the perimetric lens may suggest themselves.

1. The increase in weight. Of course much of this will depend upon the optician, as to whether he turn out a thick or thin lens. If due care is exercised in this respect, the increased weight need not, on the average, exceed twenty-five or thirty grains.

2. The cost of manufacture. I am assured by Messrs. Bonschur & Holmes, The Fox Optical Co. and Messrs. Wall & Ochs, who are now making these lenses, that the price is the same as for other lenses.

3. The shape and size, especially the latter, is not going to recommend the perimetric lense to a certain class who, in spite of the advice of the oculist, insist upon having a small lens "that will not show." The perimetric lens does look large off the face, whereas, when on the face it attracts but little if any attention.

4. Cataract, as also high myopic corrections do not make up well in perimetric lenses on account of their necessary thickness and weight.

5. Spherical perimetric lenses are not so easy of manufacture as the cylinder or spherocylinder by reason of the fact that spheres come already cut, while the cylinders are in the square.

6. The patient with a long interpupillary distance (the myopic) can not get the same amount of comfort from the perimetric lenses as the one with an average of 62 or 64 m.m. Statistics² show that 63% of all eyes have simple or compound

²Annals D'Oculistique, July, 1895, page, 72.

hyperopic astigmatism, and it is in these cases especially that perimetric lenses are recommended. Other objections that may suggest themselves, as in the case of long eyelashes, etc., are also found in the use of the ordinary spectacle lenses, and are, therefore, not points for consideration in this description.

Perimetric lenses are to conform to the sizes and numbers of the present styles of lenses.

Bifocals are made with decided advantage; as a larger segment is used for the near or working distance than in the ordinary lens.

Perimetric lenses may be framed, but the frameless are recommended, for the same reasons as in using the ordinary.

The toric perimetric lens is really the perfection lens in every particular, but its cost will exclude it from every-day prescription.

In conclusion, the writer would add, that for the past four weeks he has been wearing with unusual satisfaction the form and style of perimetric lenses here described, and the cases in which he has had opportunity to order them, have given like comfort and pleasure.

DR. F. E. D'OENCH has been elected one of the surgeons to the New York Ophthalmic and Aural Institute.

DR. RICHMOND LENNOX, one of the surgeons of the Brooklyn Eye and Ear Hospital died in Brooklyn.

DR. C. WALDHAUER, Mitau, celebrated the fiftieth anniversary of his graduation. We congratulate. Unfortunately, the successful oculist, is himself now stricken with blindness.

THE *Annals of Ophthalmology and Otology* will in future be edited by Dr. T. M. Hardy, of Chicago, who will have charge of the department of Otology and Laryngology. The Ophthalmological department will be under the editorial management of Dr. C. A. Wood. We heartily congratulate them and wish them success.

CLINICAL MEMORANDA.

A CASE OF RHABDOMYOMA OF THE EYELID.

BY ADOLF ALT, M.D., ST. LOUIS, MO.

Our knowledge of the different forms of new growths occurring in the eyelids has been considerably enlarged within the last decade. The following case is, as far as I know, and can find out, a totally new observation.

On January 2, 1896, a young man, about 17 years old, presented himself at my clinic at the Beaumont Hospital Medical College. Dr. Jennings, my assistant, brought the patient to me for operation before the class, with the diagnosis of a large chalazion.

I found the left lower lid swollen, more particularly near the outer canthus, where the swelling was more prominent and harder. The inner side of the lid did not show the usual signs of a chalazion. The patient, and afterwards his mother, stated that they had noticed the lid becoming thicker for six weeks previously. There had at no time been any pain, neither spontaneously nor on pressure.

After having made the incision through the skin and palpebral muscle down to the surface of the tumor, I found that it extended all across the lid, tapering off towards the inner canthus. There was considerable bleeding after its removal.

The tumor had a whitish covering and felt elastic, yet harder than a chalazion usually does. These peculiarities prompted me to examine it histologically.

The bulk of the tumor consists of striated muscular tissue in all stages of its development. In some places there are bundles of old striated muscular fibres, mostly cut transversely which from the direction in which my sections are made, proves, that even these old muscular fibres are not fibres of the orbicularis palpebræ. Around these, going in all directions and meeting each other at all angles, and often running

concentrically around a blood vessel, are innumerable bundles and tracks of younger muscular fibres, many of which are still single long spindles with a larger or smaller oval nucleus, and just forming their sarcolemma. Fig. 7 (see Plates), is a photograph of one of these parts where the younger and youngest fibres predominate. Numerous round cells lie between the muscular fibres.

Embedded in this muscular tissue are a large number of foci of round cells, like small abscesses. These lie particularly in the neighborhood of larger bloodvessels.

There is not a trace of glandular tissue, nor did the tumor penetrate deeply into the tarsal tissue. The blood-vessels are either filled with blood and distended, or obliterated by proliferation of their endothelium. On a great many of the smallest ones the muscular coat is also hypertrophied.

At first sight the abscess-like accumulations of round cells gave the impression of a sarcomatous growth; yet, on farther examination they can be considered only as aggregations of leukocytes. The character of the tumor I think, therefore, is a benign one. There is so far, at least, no sign of a recurrence, which, of course, is not proving anything.

EDITORIAL.

A BILL TO CREATE LAY OPHTHALMOLOGISTS.

We find the following in the *New York Medical Record*: The following circular was issued by the Committee on Legislation of the Medical Society of the State of New York:

"To the Medical Profession of the State of New York:

"A bill has been introduced in the Assembly incorporating the Optical Society of the State of New York, the passage of which would be a serious menace to the public at large and an infringement on the laws governing medical practice.

"This bill gives to the New York Optical Society, which is not composed of medical men, the exclusive right to issue certificates to opticians, charging for each the sum of \$25.00; certificates which it can revoke at its pleasure. It also has the power to license 'refracting opticians,' thus putting into hands

of incompetent people the right to fit glasses for various troubles of the eyes, privileges which should be only in the hands of competent physicians.

"A bill was hurried through the Legislature during the last session which conferred on chiropodists medical rights, the possession of which, in the hands of the ignorant, can not fail to work harm to the community. It is our duty as physicians and guardians of the public health to keep a watch on these efforts to evade the laws governing medical practice and to enter at once a vigorous protest.

"The members of the Legislature are in nearly every instance willing to be guided in these matters by the expressed desires of the medical profession; it is therefore requested that every physician throughout the State write to the senator and assemblyman representing his district, protesting against this bill, and requesting the representative to use his influence to defeat it.

"The bill is entitled 'An Act to Incorporate the Optical Society of the State of New York,' etc., and is known as Assembly Bill No. 727, which number, please, use in writing to your representative.

"A. WALTER SUTTER, M.D.,

"MAURICE J. LEWI, M.D.,

"J. M. WINFIELD, M.D.,

"Committee on Legislation."

We trust that every practitioner in the State will do his best to defeat this unjust and outrageous measure."

If the support of medical men from other parts of the

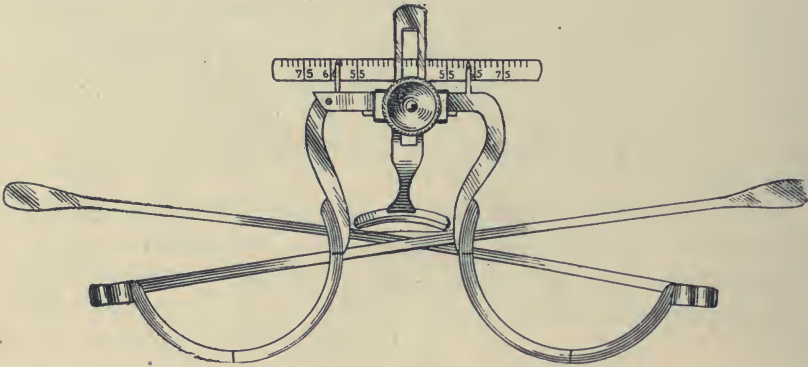
country this bill will add our most
 of the State and local men. We
 rather be in the possession of
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OPHTHALMIC DIGEST.

By J. ELLIS JENNINGS, M.D.,
OF ST. LOUIS, MO.

AN IMPROVED FORM OF TRIAL FRAME.

CHARLES A. OLIVER, M.D., Philadelphia, Pa., (*Annals of Ophthalmology and Otology*, October, 1895):



The advantages of this test frame over others of this kind may be enumerated as follows:

1. The extreme lightness and durability of the contrivance.
2. The concentration of the working portions in and around the central wedge.
3. The simple mechanism by which an independence of lateral movement in its two sides can be made, thus allowing correct horizontal centering and absolute gauging for each eye.
4. The great lengths and shape of its temples, by which, when properly applied to the head of the patient, the frame is securely, though lightly attached.
5. The simplicity in shape and ready method of working of the nose piece, thus permitting an easy and quick vertical adjustment of the contrivance to be made.
6. The simple, durable device by which spherical and cylindrical form of lenses as well as prisms and other optical

contrivances, such as stenopaic slits, tinted glasses, etc., can be employed to their greatest advantage.

Messrs. Reimold and Meister are now prepared to furnish samples of this instrument in its newest and best form.

A PRELIMINARY REPORT OF A PERIMETER BASED ON A NEW PRINCIPLE.

JOSEPH E. WILLETTS, M.D., Pittsburg, Pa., (*Annals of Ophthalmology and Otology*):

The objections to the present method of ascertaining defects in the visual field are, indeed, numerous. In 1892 I took the field of vision of a man with a perimeter at the Manhattan Eye and Ear Hospital for twelve consecutive mornings, at the same hour, and as near as possible under the same conditions and on comparing the results there were no two alike.

Recognizing that the unsatisfactory statements of the patient materially influence the result, that there must be an approximate allowance made in each case for the constantly varying physiognomy; and that the time and inconvenience necessary for a conscientious examination of the visual field were decided objections, I endeavored to construct, or combine a number of prisms or cones, which would transmit or refract the rays of light to that part of the retina corresponding to the degrees in the present perimetrical chart. Fixing myself in the position of the patient, I, with the prisms at hand, succeeded in deviating the stationary disc to 70° on the perimeter. To make the result correspond as nearly as possible to the present accepted ellipsoid, color and form field, as the perimeter gives it to us would be necessary to have prisms of different strengths combined in a whole. On this principle I had an octagon ground. Recognizing later that this shape would be expensive and the results inaccurate, I constructed a cone-shaped hexagon, having all prisms of the same strength. Thus a cone or cone-shaped hexagon with its sides cut at an angle of $70^{\circ} 40'$, made of flint glass with an index refraction of 1584, will throw six lights at the same time on the retina at the angle corresponding to 70° as taken by the perimeter.

Plates in text-books showing 55° to 60° to be the normal

or white of the superior, inferior and temporal portions of the retina are misleading, and certainly are not correct any more than the plates showing a restricted color field are. The prism I have constructed has demonstrated to my satisfaction that there is no restriction of the normal field for any color or any object. The present restriction is not due to the inability of the retina to receive impressions at its periphery, but entirely to outside influences—the physiognomy, and the crude instrument by which the field is taken. All colors are recognized with this prism at the periphery of the field, as well as inside of the color field, as at present recognized. That it is not so plainly seen at the periphery is partly due to the fact that to deflect an image to the 70° angle on the retina the rays cannot pass through the angle of minimum deviation of the prism and thus transmit a clear image of the object; but instead, a distorted one is transmitted to the retina, which confuses the patient. If it were possible to throw an image on the periphery which was not distorted it would be very distinctly seen. That this is a fact is proven by directing the visual axis to one of the false images on the periphery, which necessarily causes it to fall on the macula. If its indistinctness on the periphery were due to insensibility of the retina, it should be distinctly seen when focused on the macula, which it is not, showing that its indistinctness is due to distortion alone.

With this combination of prisms, or with the cone, which is the same principle, the field of vision and the color sense may be taken in an instant. If the $73^{\circ} 40'$ hexagon or the $70^{\circ} 40'$ cone is placed before the eye, and an incandescent light with a red globe turned on, and the patient sees six lights with the hexagon or an unbroken ring of light with the cone, it is positive evidence, after a slight rotation of the hexagon, or without rotation of the cone, that not only the field of vision is normal at the angle of 70° for all meridians, but also that the color sense for red is normal at that angle. A row of incandescent lights, green, blue yellow, or any of the complement colors, can be successively turned on, and the field and color sense for that angle established decisively in an instant. The cone, or the hexagon of prisms, which refracts at 60° can then be slipped in the trial frame, and so on down to 10° .

The advantages of the prismatic perimeter over the old one are :

1. That the field of vision can be accurately taken in an infinitely shorter space of time.
2. That the color-sense can be taken at the same time that the form field is taken.
3. That the result can be depended upon, inasmuch as it is always taken under the same light-stimulus, while under the old method one might ask: Under what conditions was this field taken? Was the light good? Was the stationary disc and the moving disc perfectly white or were they mottled and dirty, and was there anything unusual in the patients' physiology?
4. That it is a new confusion test for simulated blindness.
5. That it is a new muscle balance test, especially of the oblique muscles.

MIXED FORMS OF TRACHOMA AND SPRING CATARRH.

CHARLES H. MAY, M.D., New York, (*Annals of Ophthalmology and Otology*, January, 1896):

Our knowledge of spring catarrh is limited to symptomatology; we know little or nothing concerning etiology or effective treatment. The disease has been described as occurring in three forms: (1) The most frequent, in which both the hypertrophy at the limbus and the papillary changes (granulations) of the palpebral portion of the conjunctiva exist; (2) in which only the circum-corneal hypertrophy is present; and (3) in which the ocular conjunctiva remains normal, but the palpebral presents flat granulations. The disease is most frequently confounded with trachoma, especially when the diagnosis is first made in winter. The clinical history of exacerbation during the summer is always an important factor in this connection; and by many, this recurrence of the subjective symptoms with the advent of warm weather, and freedom during winter, is regarded as pathognomonic.

It should be remembered, however, that even though the subjective symptoms disappear with cool or cold weather, the objective signs persist to a greater or lesser degree in almost every case. The circum-corneal hypertrophy becomes smaller,

the ocular conjunctiva loses its injection and the granulations of the palpebral conjunctiva become less prominent; but, close observation will show that none of these objective signs disappear completely in winter. In some cases there is sufficient change in the palpebral conjunctiva persisting during the winter to warrant the suspicion of trachoma. From a study of six cases the author comes to the following conclusions:

1. There exists a mixed form of trachoma and spring catarrh in which the symptoms of the latter are added during the prevalence of warm weather.

2. The existence of the slightest evidence of pannus or of cicatricial changes in the lids strengthens the diagnosis.

3. The use of the treatment for trachoma (blue-stone or expression) exerts not only a good effect upon the trachoma, but also modifies the course of spring catarrh in a decidedly favorable manner.

4. When such an association of these two diseases is suspected, the treatment of trachoma should be instituted since we are not at the present time aware of any method which will shorten the lengthy duration of spring catarrh.

5. It seems probable that constitutional treatment on the lines now adapted in hay fever will be productive of more success than we have hitherto had with the local treatment of ordinary cases of spring catarrh.

A MISTAKEN DIAGNOSIS OF HYSTERICAL AMBLYOPIA.

HENRY FRIEDENWALD M.D., Baltimore, Md., (*Medical News*, February 15, 1896):

The separation of cases of organic from those of functional disease of the nervous system is usually not difficult, especially when the patients can be kept under observation for some time. In some cases of organic nervous disease, however, the proper signs may be entirely wanting for diagnosis; they may be replaced by those that are more or less characteristic of hysterical affections. In other cases, again, the signs of true organic disease and those of functional disorders are so mingled that the diagnosis becomes a matter of the greatest doubt. Thus Dr. Buzzard (Brain, 1890), described a number of cases in which the diagnosis of hysteria had been made, and in time

the true nature of the disease was shown to be disseminated sclerosis.

It is useful to call attention to these cases, for they teach one to be very careful in diagnosis, and especially to go slowly before designating a case as "hysterical." The most careful examination will sometimes not save us from error. In the case which will be reported below, this error was of the most serious nature.

Before describing the case, it may not be out of place to mention that hysterical affections are sometimes met with in ophthalmic practice. The most common are functional disturbances of vision, without any ophthalmoscopic alterations. Central or peripheral vision may be affected. The fields of vision for the several colors and for white are usually altered. The case which is to be presented in this paper is one in which the diagnosis of "hysterical amblyopia" was made.

Mrs. A., aged 40, consulted me May 23, 1892, complaining that her vision had been dimmed for the past three months. The dimness was most noticeable during the day, and varied greatly. She had also had severe headaches. Her menopause had suddenly come on almost one year previously. Her family history was good. No ophthalmoscopic changes could be discovered. The papillæ were normal, excepting, perhaps, a slight pallor of the macular halves. V. R. E. $\frac{8}{xxiv}$; V. L. E. $\frac{4}{lx}$. The field of vision of the right eye was somewhat restricted in its outer and lower portions, but this was rather indefinite; there appeared to be indefinite central scotomata in both fields. A thorough physical examination did not reveal any symptoms of organic disease, the only exception being a very low specific gravity of the urine (varying between 1010 and 1003). The patient's general appearance and manners strongly suggested a hysterical condition.

The diagnosis of *retro-bulbar optic neuritis* was made. It was believed to have some connection with her menopause. She was treated with the red iodide of mercury, then with jaborandi, and later with mercurial inunctions and iodide of potassium. But her condition did not improve; for some time the vision of the right eye remained the same, while that of the left eye gradually diminished. August 21, V. R. E. $\frac{8}{xxiv}$; V. L. E. could not count fingers, unless very close, and then

with greatest difficulty. At this time there was a large defect in the outer lower portion of the left field of vision.

At this time a consultation was held with Dr. X., a well-known specialist in diseases of the nervous system. He was unable to find any signs of organic nervous disease.

The patient was then sent to Dr. Y. an eminent oculist of New York, for it was evident that the diagnosis of retro-bulbar neuritis was at least very doubtful. In that case we should have found definite ophthalmoscopic changes after such a length of time, and yet there were none. The diagnosis had, therefore, been changed to *hysterical amblyopia*.

Prof. Y.'s answer stated that he considered the affection "purely nervous." "There is an indication of sector-like temporal pallor, as in central scotoma." But he could find "no central scotoma, not even for colors. Her field is irregular; in the right, the outer lower quadrant is absent; in the left, the lower half; then again, she saw the hand in the lower half. V. R. E. at first $\frac{20}{L}$, then with weakest glasses $\frac{20}{XXX}$. Reads No. 2 Jaeger and should read No. 1, commensurate with V, for distance. The whole disease is a form of neurasthenia, and I am sure she will recover."

The great variations which had previously been noted by me, both in the fields of vision and in central vision, as well as those mentioned by Dr. Y., strengthened me in the belief that the diagnosis, concerning which we were all of the opinion, was correct. But treatment with this view, especially suggestive treatment, was without the slightest effect. Early in October, therefore, it was deemed wise to again have her undergo a thorough examination of the nervous system, and Dr. Z., a distinguished professor of Psychiatry was called upon. He likewise saw the patient a number of times, and concluded that the affection was of a purely functional character. Treatment with ergot, and later with tonics, did not improve her condition. She became somewhat dull, her memory began to fail, and the vision of both eyes gradually diminished. November 20, V. R. E. $\frac{8}{LX}$, V. L. E. could not count fingers. Still there was no ophthalmoscopic change.

During the latter part of December, as I was afterward informed, her gait became reeling, her limbs became weak, and her mental condition became much worse; she slept a great deal, her memory was very poor, and she spoke very

little. At the same time her headaches had ceased. January 1, 1893, she lost control of the bladder, and became too weak to remain out of bed. Her condition gradually became worse, and on January 13 she died with symptoms of cerebral edema.

In the absence of a post-mortem examination, it is impossible to decide as to the cause of her complaints and of her death. But it was evident that the diagnosis of hysterical affection which was made by me, and with which several eminent physicians agreed, was a mistaken one.

There was certainly some organic cerebral affection which ran its course without involving any peripheral sensory or motor nerve, excepting the optic nerves, and produced no symptoms but diabetes insipidus, and toward the end, loss of mental power.

CONGENITAL NIGHTBLINDNESS.

An interesting account of this rare but important condition comes from the clinic of Professor Fuchs. One set of cases comprises a grandfather who had two night blind sons and three night blind grandsons. Of these five cases, four suffered from myopia, the correction of which gave good vision; one is noted as being emmetropic in one eye, and slightly hypermetropic in the other. For the most part the fundi are noted as free from retinitis pigmentosa and the vessels normal. Only in two is the retina observed to be tessellated. In all the cases the minimum light sense, as examined by Förster's photometer is found to be defective. So far as known, there is no history of consanguinity, and in all the condition had remained the same throughout life without any increase.

To these cases there is to be added that of a Jewess. One of her fraternal uncles gradually became blind. In her the night blindness is reported as having been stationary. Ophthalmoscopic examination showed that the retinal arteries are diminished in size, but the fundus otherwise healthy. In the cases tested the light difference sense is noted as normal. This corresponds with Bjerrum's observation. It should also be mentioned that hemeralopia is often present in glaucoma. —*Glasg. M. J.*, 1896, xlv, 78.

SOCIETY PROCEEDINGS.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

EDWARD NETTLESHIP, F.R.C.S., President, in the Chair.

THURSDAY, MARCH 12, 1896.

KERATITIS OCCURRING IN LEPROSY.

This paper was read by MR. KENNETH SCOTT (Cairo). One of the patients was a male Egyptian who had been afflicted with anæsthetic leprosy for many years. Included among the affected parts were most of the muscles supplied by the facial division of the seventh nerve. He could not close the eyes, which were consequently exposed to external irritation. There was diffuse infiltration of the lower portions of both corneæ, with a group of three or four raised papillæ covered by epithelium. Similar papillæ were present in a second case. The author would have regarded the corneal affection as due to exposure only had it not been for the presence of these small groups of raised papillæ.

RECURRENT PARALYSIS OF OCULAR NERVES.

This paper was read by DR. ORMEROD and MR. HOLMES SPICER. Seven cases were narrated, three of which were of the third nerve. The patients had suffered from a periodically recurring one-sided headache, attended with vomiting and a sense of illness, the attacks varying much in intensity. The slighter ones had passed off after a few hours; the more serious ones had lasted several days, and had been accompanied by sudden and more or less complete paralysis of the corresponding third nerve. In the earlier attacks the paralysis was recovered from, but after several recurrences some of the parts of the third nerve became permanently paralyzed. In one of the cases there was partial atrophy of the corresponding optic nerve. The fourth case had recurrent paralysis of both

third nerves, occurring after a long course of periodic headaches, in which the ultimate condition was one of complete ophthalmoplegia externa of both eyes. The remaining cases were of paralysis of the sixth nerve, in one of which the seventh nerve was also involved and in the other the third was partly involved. The opinion was expressed that the term "migraine" which was commonly applied to these cases was an unfortunate one; there was no history of the other migraine phenomena in the published cases, such as hemianopsia or scotomata or visual spectra; moreover, the motor character of the affection and the persistence of the impairment of movement pointed to a definite focal lesion at the base of the brain, an opinion which was supported by the results of post-mortem examination.

THE PRESIDENT thought the authors were to be thanked for having put all these cases together so that the present position of our knowledge as to these cases might be rightly estimated. The subject was still unexhausted.

MR. GRIMSDALE had shown a case of a boy just recovering from the sixth attack, which resembled many of the cases mentioned by the authors. The attacks in this patient always came on in cold weather, and were associated with tenderness on pressure of the globe.

DR. ORMEROD had reported to the Society some years ago some cases of localized unilateral paroxysmal headache, followed by œdema or ecchymosis of the lid. He mentioned them because some of the cases mentioned by the authors were said to have local congestion of the eye during the attacks.

DR. JAMES TAYLOR thought there was room for further investigation of these cases. There was evidence of affection the trunk of the nerve rather than of the nucleus. In the cases which had come under his notice the paralysis had gradually become permanent. He did not think trigeminal neuralgia was at all commonly associated with the third nerve paralysis. There was no anæsthesia in most of these cases, such as would exist if the fifth nerve were involved.

DR. COLMAN referred to a case of this kind he had recently observed in which there was rapid flapping of the eyelid up and down at the beginning of the attack, which he regarded as the representation of a motor convulsion. He did not agree with Dr. Taylor that the symptoms pointed to an affec-

tion of the trunk of the third nerve, as in some of the recorded cases there had been no paralysis of the pupil of the iris. Other cranial nerves were always implicated. He thought an extensive tract of grey matter, including the nuclei of these nerves, was the seat of the lesion. He would not group these cases under the heading migraine, as in none of the 30 cases were any of the visual phenomena present associated with that condition.

MR. PRIESTLEY SMITH had been accustomed to regard these cases as due to a general diathetic condition, like ordinary neuralgia or sciatica, rather than to a focal lesion. He had had one case which was a therapeutic success: it was in a young man who had had skilled treatment for some time without benefit. He had put him on an elimination course of free hot water drinking; his headache had been much diminished and he had no recurrence of paralysis.

MR. ERNEST CLARKE had cured one case of this kind by correcting an error of refraction in the affected eye.

DR. HILL GRIFFITH had seen painful subcutaneous nodules mentioned in cases of fifth nerve neuralgia. He asked if others had met with them, as he had looked for them unsuccessfully.

MR. POWER thought that worms might be a possible cause of this recurring paralysis.

REFLEX AMBLYOPIA DUE TO PREGNANCY.

This case was narrated by MR. LAWFORD KNAGGS. The patient at the of 32 went blind in the left eye during a pregnancy. When first seen that eye diverged, had no perception of light, and showed atrophy of the optic nerve. There had been four children since; at the age of 40, being four months pregnant, the fundus of the right appeared normal; there was rapid failure of vision from $\frac{6}{XII}$ to less than finger vision, loss of color vision, and concentric contraction of the visual fields. Premature labor was induced, and six months later vision had again become $\frac{6}{VI}$, and the field was restored to the normal except for the obliteration of the right inferior quadrant; color vision was perfect, and the appearance of the optic disc suggested partial atrophy. A year later the patient became pregnant again; there was again loss of sight, with contraction of

the field, the color vision being unaffected. Abortion was again procured. Vision was again restored to $\frac{1}{VI}$, the field regained its former size, except that the right upper quadrant was lost. The prognosis of this form of amblyopia was very serious; it was probably produced by a deficient blood supply resulting from vasomotor constriction of the vessels of the chorio-capillaris. If there was loss of visual acuity with progressive contraction of the visual fields the pregnancy should be terminated in order to avoid the risk of permanent blindness.

DR. JAMES TAYLOR thought that the title of the paper ought not to pass without discussion. The condition of the visual fields was not like a functional one, and he thought it was going too far to label the case "reflex amblyopia" when there was evidence of grave organic change.

MR. PRIESTLEY SMITH thought it possible that local conditions of the generative organs might set up a temporary spasm of the retinal vessels which, if prolonged, would result in all the signs of blocking of the retinal artery. In Mr. Knagg's case the condition was due to a vascular lesion, as the scotoma started from the optic disc.

MR. JOHNSON TAYLOR thought the case was probably one of atrophy of the optic nerves coming on at different times in the two eyes.

THE PRESIDENT thought it possible that the affection was chiasmal, first affecting one optic nerve at its emergence from the chiasma, then later on traveling back and taking part of the remaining fibres. The variations in the size of the field might be taken to be reflex.

CARD SPECIMENS.

MR. LAWS, Case of Retinitis Circinata. MR. DOYNE (1) Case of Aneurysms of Retinal Vessels; (2) Ossification of Choroid and Calcification of Lens. MR. ROCKLIFFE, Sarcoma of Orbit. MR. RIDLEY, Glaucoma Following Cyclitis. MR. POULETT WELLS, Transverse Films of Both Corneæ. MR. GRIMSDALE, Recurrent Paralysis of Third Nerve. MR. ERNEST CLARKE, (1) Detachment of Retina; (2) Sarcoma of Choroid. MR. STEPHENSON, Unusual Arrangement of Retinal Arteries. —*British Medical Journal*.

ADDITIONAL PAPERS TO BE READ AT THE
ANNUAL MEETING OF THE OPTOMETRIC
SOCIETY OF THE AMERICAN
OPHTHALMOLOGICAL ASSOCIATION.

Herbert Harlan, Chairman; Hiram Woods, Secretary.

[To be read in the afternoon.]

Address of the President, Hiram Woods.

Report of Special Committee on the Treatment of the Retinal Lesions of the Eye.

Report of Chairman, H. K. Burdick—"Histological Changes in the Retina."

Dwight S. Keyes—"The Nomenclature of Endophthalmitis."

F. W. Hotz—"A Case of Ectropion of the Upper and Lower Eyelids."

Louis J. Lauterbach—"Conorrhinal Conjunctions: Their Treatment."

P. D. Kayser—"Grafting in Elephantiasis."

H. W. Ellis—"Atrophy of the Optic Nerve, and Blindness Due to Ocular Disease."

B. Alexander Randall—"The Differential Diagnosis Between Simple Glaucoma and Optic Nerve Atrophy."

R. E. LeMond—"The Relationship Between the Eye and Brain."

O. W. Short—"Treatment of Optic Nerve Atrophy by Mercurial Injections in Conjunction with the Hot Springs of Arkansas."

G. C. Savage—"Some Interesting Points Pertaining to Refraction."

Herbert Harlan—"A Contribution to the Question of the Removal of the Lens in High Myopia."

Herbert Harlan and Hiram Woods—"Results of an Examination of the Vision of the Children of the Public Schools of Baltimore."

H. Gradle—"Slight Chorio-Retinal Lesions as a Cause of Asthenopia and Reduced Sight."

C. M. Hobby—"The Co-Ordination and Inco-Ordination of the Eye Muscles."

C. P. Pinckard—"An Ophthalmometric Puzzle."

J. Elliott Colburn—"A Case of Intra-Sclerotic Cyst, and a Case of Cystic Tumor of the Orbit."

Geo. F. Fiske—"Report of Intra-Ocular Malignant Tumors."

S. C. Ayres—"A Case of Chloroma."

A. R. Baker—"Dermoid Tumors of the Cornea."

Arthur G. Hobbs—"The Application of the Galvano-Cautery in Pterygium Operations."

C. D. Westcott—"Keloid of the Cornea."

Adeline E. Portman—"Idiopathic Choroiditis."

Hiram Woods—"Report of Some Cases of Choroiditis in Young Adults."

H. Moulton—"Keratitis Interstitialis Annularis."

H. Burt Ellis—"Bilateral Exophthalmus."

J. Herbert Claiborne—"Experiments Upon Rabbits, Made With a View to Establish a Stump for the Better Fitting of Artificial Eyes."

H. B. Young—"A Further Clinical Note on the Use of Pyoktanin."

THE room for holding the meeting of the Ophthalmological Section of the American Medical Association, at Atlanta, will be at the "ARAGON" Hotel. Ophthalmologists will do well to engage rooms at this Hotel.

FRANK ALLPORT, Secretary.

BOOKS AND PAMPHLETS.

METHODICAL EXAMINATION OF THE EYE. Being Part I of a Guide to the Practice of Ophthalmology for Students and Practitioners. By WILLIAM LANG, F.R.C.S., Eng., Surgeon to the Royal London Ophthalmic Hospital, Moorfields; Surgeon to and Lecturer on Ophthalmology at the Middlesex Hospital. Illustrated with 15 Original Photo-Engravings. 96 pages. London and New York: Longmans, Green & Co. 1895.

In this little book the author teaches the Student to examine each case in a routine manner. The examination is divided into three stages. In the first, the ocular appendages

and anterior parts of the eye are investigated; in the second, the vision and refraction are ascertained; and in the third, the media and fundus oculi are examined with the ophthalmoscope. Mr. Lang is an ophthalmic surgeon and teacher of great ability and in this the first part of a Guide to the Practice of Ophthalmology the student will find many practical points and valuable suggestions which have been gleaned by the author from a ripe experience. JENNINGS.

RESEARCHES INTO THE ANATOMY AND PATHOLOGY OF THE EYE. By E. TREACHER COLLINS, F.R.C.S. With 10 Plates and 28 Figures in the Text. London: H. K. Lewis. 136 Gower Street. 1896.

Whoever has had an opportunity to get acquainted with the many additions to our knowledge of the anatomy and pathology of the eye, made by Mr. E. Treacher Collins, knows what excellent use he has made of the curatorship of the museum of the Royal London Ophthalmic Hospital, which position he held for six years and in which it seems no easy matter to replace him. The book now published contains articles formerly published by him and new additions full of important thoughts and experiences, and it can not fail to arouse great interest. It should be studied by every ophthalmologist. The make-up and illustrations are very commendable.

NEW TRUTHS IN OPHTHALMOLOGY, as developed by G. C. SAVAGE. 58 Illustrations. 3d Edition. Published by the Author, Nashville, Tenn. Price, \$2.00.

In this new edition we find that Dr. Savage has added his articles published since the first edition and thus he has not only considerably enlarged the book, but gives, so to speak, a history of the growth and vicissitudes of his "new truths." Surely, he is deeply convinced of the correctness of his ideas and expresses them emphatically. We gladly recommend the purchase and study of this interesting volume.

ELECTRICITY IN ELECTRO-THERAPEUTICS. By E. J. HOUSTON, Ph.D., and A. E. KENNELLY, Sc.D. New York: The Wm. Johnston Co. 1896.

This is a most excellent little manual. It gives in a short

and perspicuous manner a mass of knowledge which, it is certain, every one applying electricity to the treatment of disease should know. It is profusely illustrated and can not fail to attract.

DON'TS FOR CONSUMPTIVES. By CH. W. INGRAHAM, M.D., Binghamton, N. J. 1896.

We confess to an abhorrence of the title, of which the words given above are only in infinitesimal part. Yet, this manual contains much that is of usefulness and interest to consumptives and their families, and perhaps, their physician. As a book for the general public we can thoroughly endorse its hygienic teachings. ALT.

PAMPHLETS.

"Report of the Ophthalmic Hospital of Cincinnati."

"Is There a Rampoldi's Sign." By C. A. Wood, M.D.

"The Eye Symptoms of Intracranial Tumors. By W. F. Norris, M.D.

"Mixed Forms of Trachoma and Spring Cataract." By Ch. H. May, M.D.

"The After-Treatment of Normal Cataract Extraction." By C. A. Wood, M.D.

"Color Measurement and Its Application in Medicine and Arts." By C. A. Wood, M.D.

"Influence of Affections of the Upper Air-Tract Upon the Ear." By H. A. Alderton, M.D.

"A Preliminary Report of a Perimeter Based on a New Principle." By Jas. E. Willetts, M.D.

"The Terminal Loops of the Cones and Rods of the Human Retina," with photomicrographs. W. F. Norris, M.D.

"The Blind of Kentucky, Based on a Study of 175 Pupils of the Kentucky Institute for the Education of the Blind." By J. M. Ray, M.D.

"Transactions of the Ophthalmological Society of the United Kingdom." Session 1894-1895. Vol. XV. J. and A. Churchill, London. 1895.

OBITUARY.

PROFESSOR DR. RUDOLF SCHIRMER.

Professor Dr. Rudolf Schirmer (Geheimer Medicinalrat) at Greifswald, whose death we mourn, belongs completely to the Pommerian University. There he was born on March 11, 1831; there he studied first at the Gymnasium, and then medicine at the Pommerian High School from 1852. In 1856 he graduated, his thesis being a physiological examination of the sense of taste. The following year he absolved the state examination, after which he took the usual journey for four years in Goettingen, Berlin, Wien, and Paris. His longest stay was made in Berlin, where he became acquainted with von Graefe. This acquaintance gave the decisive direction to Schirmer's life-labors.

In Greifswald he succeeded in having the teaching of ophthalmology introduced as a separate discipline. He was appointed, in 1860, the first teacher of ophthalmology in Greifswald. In 1867 an extraordinary professorship was created for him, which in 1873, during the general reform of the ophthalmological teaching in the Prussian Universities was made an ordinary one. To this professorship is now attached the directorship of the University Clinic for eye diseases, which was founded by Schirmer, and in which he taught, twelve hours a week, as a most zealous teacher.

Among his scientific productions we may mention his two larger works, one "On the Affections of the Refraction and Accommodation," the other "On the Diseases of the Lachrymal Organs." He published a number of other smaller papers.

Schirmer had charge of the Greifswald Eye Clinic until the fall of 1893; then he retired. His son, Otto Schirmer, is his successor as extraordinary professor and director of the clinic.—*Hirschberg's Centralblatt.*

DR. CARL HESS has been appointed to a professorship at Leipzig.

DR. G. BERRY has been elected to fill Dr. Argyll Robertson's place at the Edinburgh University.



FIG. 3.



FIG. 2.

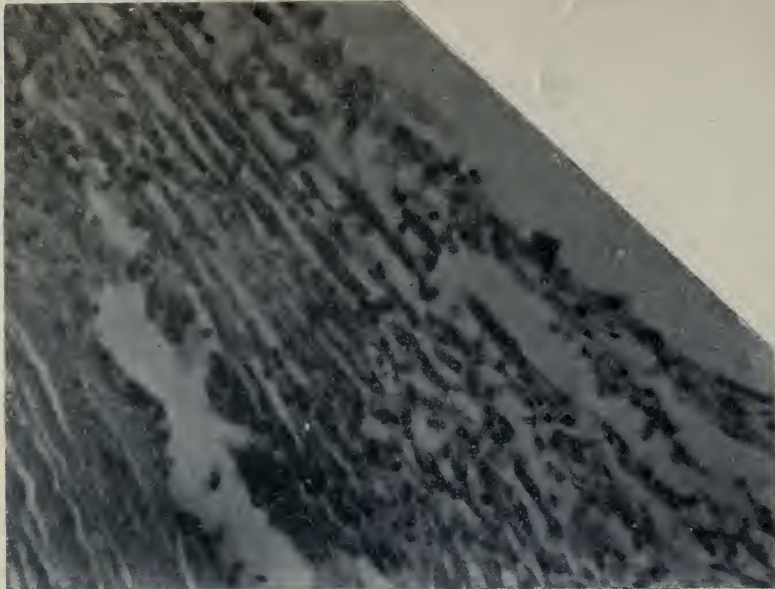


FIG. 1.

FIG. 4.

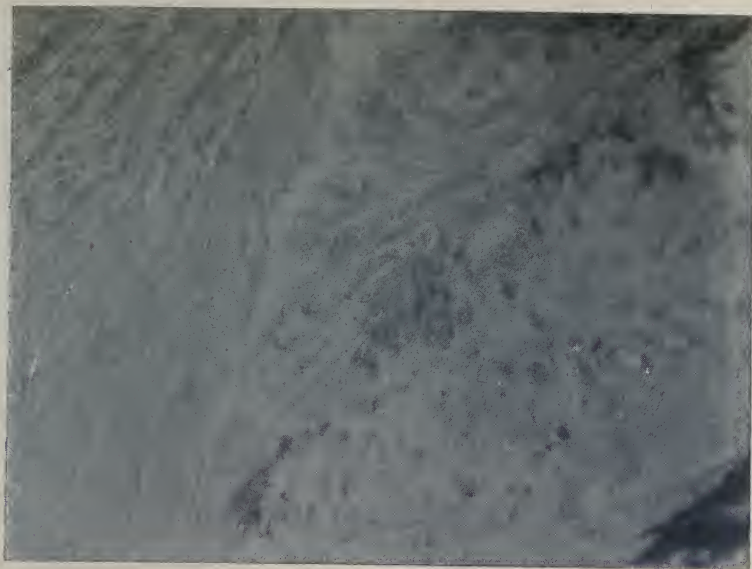


FIG. 5.

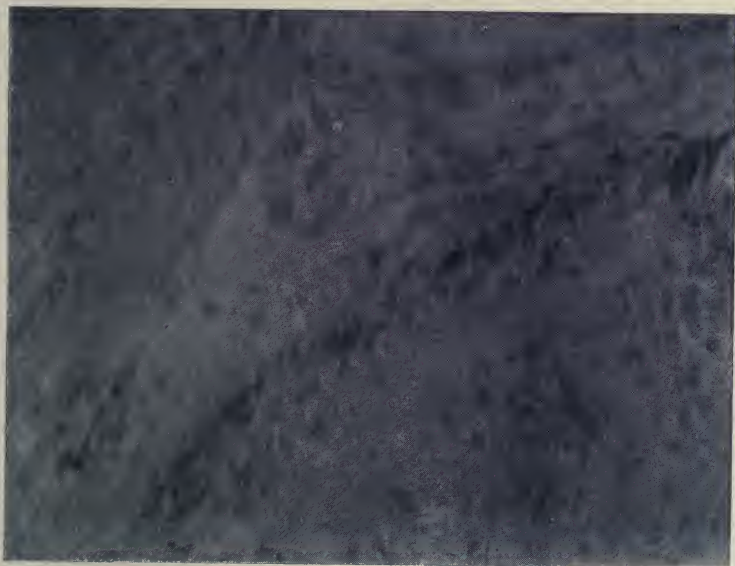


FIG. 6.



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MAY, 1896.

NO. 5.

ORIGINAL ARTICLES.

OBSERVATIONS CONCERNING THE ENDOTHELIAL
LINING OF THE ANTERIOR CHAMBER IN
HEALTH AND DISEASE.

[WITH MICRO-PHOTOGRAPHS.]

BY ADOLF ALT, M.D., ST. LOUIS, MO.

[CONTINUED FROM APRIL NUMBER.]

The ligamentum pectinatum, the tendinous attachment of the ciliary muscle and some of the corneo-scleral tissue together form a reticular, almost spongy, tissue which has the shape of a prismatic ring lying around the periphery of the anterior chamber and in front of the root of the iris. In meridional sections it appears more or less triangular, the base of the triangle lying backwards, the apex at the periphery of Descemet's membrane. Its reticular arrangement is well shown in Fig. 5 of the April number of this Journal.

Its outer side forms the inner wall of what is termed Schlemm's canal or Leber's venous plexus. This latter, however, lies usually nearer the base than the apex of the triangle. (See also Fig. 5, April number).

The fact that, like Waldeyer and others, I had never found blood in the canal, had prompted me to side with those who, contrary to Leber, considered Schlemm's canal to be a lymphatic canal and not a venous one. I must now correct this

from the venous sinus, now definitely seen, the secretion of the fluids takes place and passes into the venous sinus through a channel, in which no connection between the two exists.

It is to be proved that as ingeniously as these two experiments we can make their results contradictory, from this point of view, this question becomes extremely difficult.

Claude Bernard, though in the very same number of *Archives*, also reports the results of his experiments on the same question and made in Wiesbaden, but he obtained almost opposite results. He says that the only obstacle to the view, that "the secretion of the fluids and even the collection of the secret in the reticular space of the choroid plexus and can, when the choroid plexus is covered by a membrane, pass through the pores of the endothelium and with the fluid pass into Schlemm's sinus itself and be carried off by the aqueous conjunctive vein."

It seems to me that the microscope has been the last word in this discussion and the experiment.

I have quite frequently seen in various sections of these parts short wide open passages from the aqueous humor into Schlemm's sinus, so often that they could not be looked upon as fortuitous accidents. I have seen while I found them in some sections I have not seen in others of the same eye and their number increases with the

very large. Sometimes, however, there are several in one and the same section.

In Fig. 5 (April number) there is such an open channel in the upper angle of Schlemm's sinus which, however, in the photographic reproduction is not very easily visible. However, in Fig. 1 (this number), I have had a section reproduced in which several such larger canals, like infundibula, are seen to open into the inner wall of Schlemm's sinus. Moreover, a number of leucocytes are seen to enter through them into Schlemm's sinus and some are seen lying within it. It seems to me, that pictures like this can not possibly leave any doubt as to the existence of open canals which lead from the reticular tissue into Schlemm's sinus.

This part is usually called the filtration angle of the eye and the question at issue turns around this term filtration, which Leber thinks he is forced to uphold as the result of his experiments.

If this should be true, then we must consider these short open channels as the channels through which the previously filtered fluids finally reach Schlemm's sinus. Yet, as I have frequently seen large amounts of pigment and cellular débris being carried through the meshes of this reticular tissue into Schlemm's sinus, I do not think, that we can consider the process one of simple filtration.

As this paper is not intended to go farther into this question and to branch off into the possibly mechanical causes of the symptom complex, called glaucoma, I only want to say something of the changes in this tissue regardless of their consequences for other parts of the eyeball.

When the fluids passing from the anterior chamber through this reticular tissue into Schlemm's sinus contain larger quantities of cells (pigmented or unpigmented) and cellular débris, these solid contents are held within the meshes and soon, new ones being added, they choke the interstices and openings between the fibres. When this choked-up condition can not be relieved by the current of the fluids, it leads to a process of condensation or solidification of the meshwork. Thus, after some time we find the layers of fibres agglutinated to each other and the reticular tissue which projected inwards to some extent in its sweep toward the root of the iris, is now changed to a solid tissue, little differing from the corneo-scleral tissue,

or not at all, and no longer projecting inwards. All this while Schlemm's sinus may have remained patent and apparently unaltered, later on, however, it is, as a rule, found to be obliterated, also.

This consolidation of the reticular tissue alone must of a necessity bring the root of the iris closer to the corneo-scleral tissue and we frequently may see in such cases that the root of the iris is pressed against the region of the former ligamentum pectinatum. At first the two tissues lie loosely in touch (Fig. 2), later on a firmer union may and does often take place. In this case, however, no intervening newly-formed tissue can, as a rule, be demonstrated.

I have been unable to decide whether this consolidation of the meshes of the reticular tissue and the agglutination of its layers is due to the proliferation of the endothelial cells of the ligamentum pectinatum, or not. However, from analogy, it seems to me the more probable process, although cells immigrated into the meshwork from the anterior chamber may help in the production of this process of sclerosis.

In another series of cases we find the periphery of the iris held firmly to and even pulled towards the corneo-scleral tissue by a number of strings or bands of connective tissue which seem to be changed remnants of what was once the ligamentum pectinatum. (See Fig. 3).

The manner in which this condition comes about, is, I think, well explained by Figs. 4, 5 and 6. In Figs. 4 and 5 the iris angle is seen to be filled by a delicate fibrinous exudation which contains a number of round and short spindle cells. This exudation has also penetrated into the meshes of the ligamentum pectinatum. Fig. 6 shows the same condition from yet another eye and photographed with a lower magnifying power. Here such an exudation has filled the iris angle to a considerably larger extent and reaches as far forward as the periphery of Descemet's membrane. In this figure it is also well seen how, after an organization of the exudative material has taken place, this new tissue, as fine as it is (probably with the help of the *vis a tergo*), begins to pull the periphery of the iris towards the corneo-scleral tissue.

In the organization of this tissue both the endothelium of the ligamentum pectinatum and that of the anterior surface of the iris may be and probably are concerned.

From these specimens it seems to be apparent, that the obliteration of the iris angle is, in certain cases, surely not alone due to pressure from behind, but to a newformation of tissue in the iris angle which, when contracting, pulls the iris periphery towards the corneo-scleral tissue and when it shrinks further leads to a more or less firm union between the iris and corneo scleral tissue, in a similar manner as I have described it in *Knapp's Archives*, Vol. VI, Nos. 3 and 4.

[TO BE CONTINUED.]

DR. TH. REID'S PORTABLE OPHTHALMOMETER.

BY DR. R. MURDOCH, BALTIMORE, MD.

The portable ophthalmometer of Dr. Thomas Reid, of Glasgow, is convenient, compact, and most accurate, and it deserves a wide recognition by the profession. It measures corneal astigmatism, and, coincidentally, the radius of each meridian, by the data obtained from the same observations. It is furnished for half the price of Javal's and Schiötz's instrument, by the maker, W. J. Hassard, of Glasgow, Scotland.

While its presentation by Lord Kelvin before the Royal Society of Great Britain, gave it a notable introduction to mathematicians, yet the limited circulation of the "Proceedings" prevented a wider and more rapid recognition in the branch of ophthalmology to which it is more peculiarly applicable. I have used it constantly since my visit to Dr. Reid last July, and find it as useful as he claimed it to be. Because of the completeness of the original paper, I quote from it as well as from a single sheet, now out of print, and from some notes furnished me by Dr. Reid while I was with him in his hospital.

The ophthalmometer gives simply and with great accuracy, the amount of corneal astigmatism, the direction of the axis,—whether in or out of rule,—and suggests, when the numbers run high or low, the presence of myopic or hypermetropic astigmatism as the case may be. Conical cornea and irregular astigmatism are likewise easily detected by it.

The instrument is an optical device for observing an en-

larged doubled image whose size varies with the curvature of the corneal surface, while the angular interval remains constant. This compact little ophthalmometer is only four inches long and an inch and a quarter broad at its widest part. Outwardly (see Fig. 1), it presents a rectangular central box, which

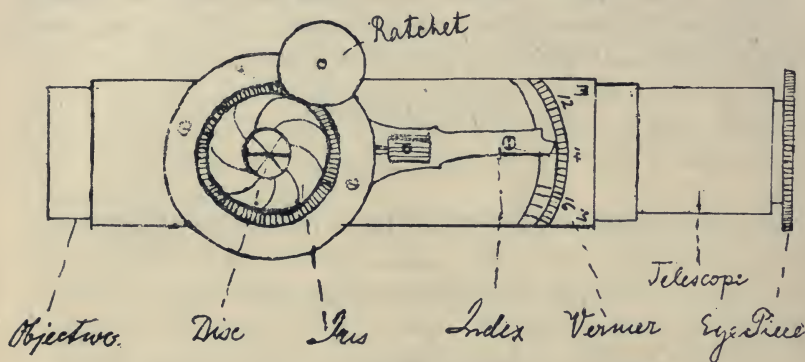


FIG. 1.

has a circular window, consisting of a ground glass disc, marked with radiating lines; and, within, a contracting iris, controlled by a ratchet. The movements of the contracting-iris are indicated by an index on a vernier, marked in mms. and diopters. Fig. 2 represents a section through the long axis

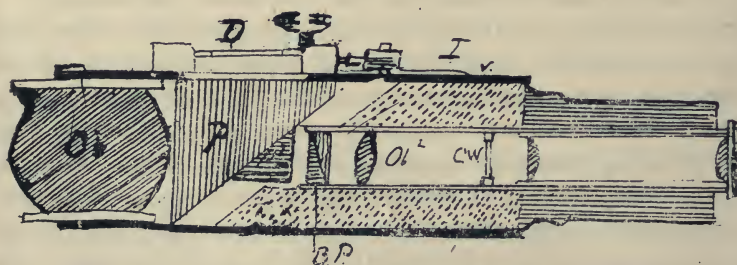


FIG. 2.

of the instrument, and shows that it contains an aplanatic lens of known focus, a rectangular prism, P , neutralized in the visual axis by a smaller prism, P^2 . One side of the larger prism is adjacent to the lens, a circular disc, D , opposite the other side, and in the principal focus of the lens. The diameter of the disc, and, consequently, of its images thrown upon the

cornea, are regulated by the contracting diaphragm. The proximal end is a telescope with eye piece and objective, Ob². Adjacent to Ob² and in the visual axis is a double-image prism, BP. The focal length of the object glass Ob² is precisely the same as that of the aplanatic lens, Ob, and the cross-wires, CW, at its principal focus are viewed by a Ramsden eye piece.

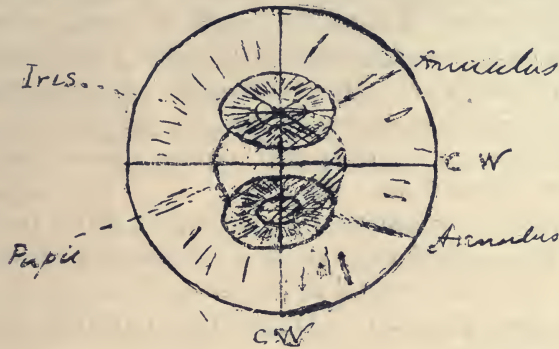


FIG. 3.

Before using the instrument, it is necessary and sufficient that the cross-wires should be distinctly seen at the *punctum remotum* of the observer, and it is also necessary that the object lens should be in focus with the ground glass circular disc. The adjusted instrument is held in the observer's left hand. The fingers should rest on the forehead of the patient, the disc being directed towards a window or gas jet at the right of the observer. The patient is directed to view the central point in the field of the instrument, which, of course, is the central point of the radiating lines of the refracted disc. The observer, at the same time, looks through the telescope, and obtains a brilliant, enlarged, doubled image of the same circular disc reflected at the corneal surface. It appears to him as two brilliant, glistening annuli, A (see Fig. 3), each averaging a quarter of an inch in diameter, and marked with the same radiating lines, and they should now by him be brought to the center of the cross-wires. If the annuli are not distinct, they can be made so by a "to-and-fro" movement.

Dr. Reid is accustomed to adjust the index to the 14 mm., or central mark on the vernier; then, while looking through

the instrument, he rotates the telescope so that the images stand at the minor axis. Should the edges not coincide, they may be made to do so by rotation of the ratchet with the free right hand, the images being enlarged. Having noted the point on the vernier where this occurs, the telescope is rotated through 90° . The now overlapping horizontal edges are in the same manner made to touch by diminishing the images. If there is a doubt as to the point of perfect contact, a double reading may be obtained by a rotation through 180° .

If one desires to know the length of corneal radius of the meridian he is investigating, he may obtain it by a simple mathematical formula. It is thus found that 15.25 mm., diameter of the disc as indicated on the vernier, is equal to 7 mm., corneal radius, a diameter of 14.25 mm. equals 7.5 mm., and one of 13.25 mm. equals 8 mm., etc.

In corneal astigmatism higher than .50 D., the elliptical form of the image suffices to show the position of least curvature. It is claimed that a difference of $\frac{1}{4}$ mm. in the size of the disc used, is equal to 1 D., and that quantities of $\frac{1}{20}$ mm. can be measured.

I predict a useful future for the instrument in the investigation of the astigmatism of the lower animals, and any one interested can obtain a supplementary double-image prism for this purpose. The field is a new one, and this easily-worked ophthalmometer meets precisely the want for such investigation.

DIABETIC RETINITIS.¹

BY ADOLF ALT, M.D., ST. LOUIS, MO.

Diabetes being a comparatively rare disease and retinal affections caused by it, or co-existing with it, being seen by oculists in extremely rare instances, I think that all of us, even at this day, should report all the cases which come under our own individual observation concerning this still debated and debatable subject.

I do not wish to enter here into the larger field of all the different eye affections which are known to be due to, or to

¹Read before the Western Ophthalmological, Otological and Laryngological Society, Kansas City, Mo.

accompany, diabetes, but wish to confine my remarks to the so-called diabetic retinitis alone.

From a perusal of the more recent article on this subject by Hirschberg (*Centralbl. f. Augenheilk.*, 1891), and a most recent one by Dodd (*Knapp's Arch.*, 1895), the reader must feel, as if there could be no doubt left, as regards the development of certain typical forms of retinitis, not only in individuals suffering from diabetes, but as direct consequences of the general disease. It seems, moreover, as if these affections of the retina in diabetics were of comparatively frequent occurrence, surely much more so, than is generally known. Some authors, like Hirschberg, even state that in the milder and chronic cases, when the patient remains alive for ten or twelve years after the onset of the general disease, the retina always becomes affected.

Yet, in spite of these statements, the number of cases reported in literature is still so small, some sixty only, that more proof is desirable.

Definite statements and statistics are, of course, difficult to obtain, and can hardly be obtained by the oculists, as regards the proportionate development of retinal affections in diabetics. The few, which I can find on record, vary considerably. Seegen, in reporting 140 cases of diabetes, relates only two cases of diabetic retinitis. Lagrange states that of 52 diabetic individuals with eye affections seen at the Bordeaux Clinic, 17 had retinitis. Galezowski saw 27 cases of retinitis in 144 diabetics. My friend, Dr. L. Bremer, of St. Louis, who in the last few years has given especial time and study to the blood in diabetes, has had one case of eye affection among about sixty cases of diabetes and this very one happens to be a case of retinitis which I shall presently relate *in extenso*. His experience, that is that of a general practitioner, tallies well with the one of Seegen, just mentioned.

In spite of the firm position taken by Hirschberg, Dodd, and others, the question, whether there is really a diabetic retinitis or not, or whether there is a form or there are forms of retinitis which can and must be considered as characteristic of diabetes, is as yet rather unsettled.

Von Graefe did not believe in a diabetic retinitis. Leber, in collecting 19 cases and adding an observation of his own, says, that there is little in the symptoms of these cases of reti-

nititis which would permit us to consider them as characteristic of diabetes. Schweigger, De Wecker, Knies and quite a number of other observers are of the same opinion. The question can only be settled, if all the cases seen, are reported, until the number has grown large enough for general and convincing deductions.

As yet, it seems to me, that even the descriptions given by those observers who believe in a strictly typical diabetic retinitis, are not altogether convincing.

Moreover, in looking through the literature on diabetic retinitis, it seems to me, that we can not fail to be struck by the fact that, granted that the so-called typical form is in reality the typical one, most of the cases reported as diabetic retinitis are atypical ones.

Undoubtedly the most careful description and formulation of what he calls the typical form of diabetic retinitis (retinitis centralis punctata diabetica) is given by Hirschberg in his report of twenty-five cases of his own of diabetic retinal affections. It has been considered classical by others and been adopted by them.

His description of this typical form is about as follows:

The optic papilla is neither swollen, nor opaque. The retina in general is unaltered, the retinal bloodvessels present no visible pathological changes. In the neighborhood of and around the macula lutea are seen a varying number of small white, whitish-yellow, shining spots, dots and dashes.

While some authors assert, that these spots assume an arrangement, like the so-called star-figure around the macula, which is considered to be characteristic of albuminuric retinitis, and in some cases even to a more perfect degree than is usually seen in albuminuric retinitis,—others (Schoebl) claim that these irregularly arranged spots never form the characteristic star-figure.

The shape of the several spots varies considerably in general and in the individual case. They are round or oval or like stripes and are said to show no tendency to confluence.

Aside from this larger aggregation of white spots in the macular region, there are usually a number of similar single spots or small groups of them distributed over the temporal area of the retina.

These spots are said to remain unchanged for years. As

they are sometimes seen to cover a bloodvessel, they must be situated in the nerve-fibre layer. There are also no pigmentary changes.

Accompanying these spots there are usually a number, sometimes a large number, of small retinal hæmorrhages. They are generally punctiform and round, sometimes in stripes. Large ones are rare.

The bloodvessels appear perfectly normal.

This is, in short, the picture of the so-called typical form of diabetic retinitis.

The second form described by Hirschberg, as retinitis hæmorrhagica diabetica, is characterized by the appearance of retinal hæmorrhages. These may be punctiform or larger, (usually there is a large number of small ones) and they may break through the limitans interna retinæ and enter the vitreous body. In some cases hæmorrhagic glaucoma has been observed. When this does not occur, the continued presence of the hæmorrhages may secondarily lead to inflammatory symptoms in the retina, that is to a true hæmorrhagic retinitis. With these hæmorrhages no white spots seem to have been observed.

In these two forms, the typical and the hæmorrhagic form, Hirschberg adds a number of retinal and probably retino-choroidal affections, which he has observed in diabetics and he classes them as atypical cases. He did, however, not consider, that the dependance of these forms of retinal affection on the general diabetic diathesis was well established.

Neither Hirschberg nor his followers are blind to the fact, that their typical form of diabetic retinitis has a great resemblance to albuminuric retinitis. Yet none of them emphasize a form of retinitis as characteristic of diabetes, which is often described in literature and which, as Leber says, can not be distinguished from albuminuric retinitis, and I may add even from albuminuric neuroretinitis, as will be seen later on.

In the larger number of the cases of this nature, reported in literature, both sugar and albumen were found in the urine; yet there are quite a number of instances on record, in which it is especially stated that no trace of albumen could be found and yet the retinitis had all the appearances of an albuminuric one.

Thus a case of Jaeger (1856) which, however, is doubtful,

two of Desmarres (1858); and others by Galezowski, Jany, Noyes, Leber, Bull and Anderson.

It seems to me, the number of such cases is large enough to consider this form of retinitis or neuroretinitis as a typical diabetic form, if any of them can be called typical.

A large number of writers on this subject, whether they themselves have seen such cases or not, state that a diabetic retinitis, so clearly resembling an albuminuric one, is really always due to an albuminuria developed in the later stages of diabetes and is, therefore, either a mixed diabetico-albuminuric retinitis or simply an albuminuric retinitis developed in a diabetic individual.

The form I refer to, however, is a retinitis or neuroretinitis in no way distinguishable from an albuminuric one—yet without albuminuria.

Not wishing to encroach any further on your valuable time, I will now proceed to relate to you briefly the few cases of retinal affections in diabetic individuals which I have had occasion to observe, with the hope of drawing forth, perchance, some observations made by others.

CASE I.—About a year and a half ago, T. H. E., 56 years old, the patient of Dr. Bremer's before mentioned, consulted me on account of loss of vision. He had always been a nervous, restless individual, who in different capacities had roamed all over the world and, in consequence, had been exposed to the vicissitudes of all climates and social conditions. He had studied the ministry and medicine and knew his case well. For about five or six years he had been aware of his being diabetic. He stated that the amount of sugar in his urine sometimes rose to eight per cent., but that by means of enormous doses of antipyrine he could bring it down and hold it for a time at one and one-half or one per cent. Dr. Bremer assures me that oft repeated and careful examinations of this man's urine never revealed a trace of albumen.

Ten days before I saw the patient, he had noticed in the morning that almost suddenly large brown spots appeared before his eyes, which materially interfered with his vision. Being very highly myopic, he had at first thought, that his glasses needed cleaning, but cleaning them, had made no change. On the day on which he called on me, he had found himself unable to read even large type. In fact, his vision was reduced

so far, that he could with difficulty only manage to get along in the street.

The only point which interests us here, is the ophthalmoscopic picture which was very much the same in either eye.

The optic papilla was considerably swollen, snowy-white, looking something like a ball of cotton; its outlines were altogether invisible. From the papilla a dense white dimness of the retina tapered off towards the macula lutea. The arteries were thin, the veins broad, dark and somewhat tortuous, particularly in the lower part of the retina. A number of white and whitish-yellow round, semilunar and oval spots formed, below and somewhat removed from the macula lutea, about a third of a circle. There were a few more white spots on the temporal side farther removed from the macula. These spots seemed separated from each other by numerous punctiform hæmorrhages and larger ones in stripes. In the left eye such hæmorrhages reached a considerable distance towards the ora serrata.

Two weeks later, the patient thought he could see better, although I could not convince myself of the truth of this statement. Ophthalmologically I found the number of white spots increased, so that they now reached a little way above the macula on its outer side, especially in the left eye. Some of the spots had coalesced and formed larger patches. There were more and larger hæmorrhages, some in stripes lying close to veins.

I saw the patient once more about two weeks later, but found then that the conditions had remained about the same.

Had I not known from the note the patient brought me from his physician and from the patient's history, that he was a diabetic, I should most assuredly, from the ophthalmoscopic picture alone, have diagnosed albuminuria. As it was, many a careful examination of this man's urine, distributed over many months of observation, had at no time shown a trace of albumen to be present.

CASE II.—Some six years ago, Mrs M. E., 64 years old, who had for a prolonged time been complaining of a general malaise with polydypsia, without, however, consulting a physician, came to me with the statement, that for several months she had noticed that vision in her right eye was blurred, par-

ticularly in near work. For about two weeks something seemed to trouble her left eye also.

I found in her right eye around the macula and very close to it several clusters of exquisitely shiny, ivory-colored, round spots. The single spots were all severed from each other by apparently normal retinal tissue. In fact, the whole of the retina, and the optic papilla looked perfectly normal and there were no hæmorrhages of any kind anywhere to be seen. The retinal bloodvessels showed no pathological changes.

In the left eye the only pathological symptom found, was one solitary round, shiny, white spot on the inner side of and close to the macula lutea.

An examination of her urine showed a considerable amount of sugar, perhaps, between three and four per cent.

I had no other opportunity to see this patient.

CASE III.—Mr. M. H., 68 years old, consulted me on account of an almost sudden failure of vision in his left eye. He had arterial sclerosis and had been under treatment for diabetes for some months.

On examination I found the retina in his left eye sprinkled almost uniformly with innumerable punctiform, I might say, miliary hæmorrhages. These hæmorrhages reached as far forward towards the ora serrata, as it was possible to see; they were, perhaps, a little more numerous in the neighborhood of the macula lutea.

In the right eye I found a few similar hæmorrhages, located in the most peripheral parts of the retina, which explained, why they did not interfere with his vision in that eye.

His physician stated later on to me that the amount of sugar found in his urine was very large.

The prognosis which I gave being a very dark one with a prospect of sudden death from cerebral apoplexy, was reason enough for my never seeing the case again. Unfortunately, my prediction came true about a month later when the patient succumbed to cerebral apoplexy.

These are the only cases, as far as I remember, which I have personally observed, of retinal affections seen in diabetic individuals.

Without going into further speculations I want to add to these, in a few words, a case which I saw but very recently in the practice of my clinical assistant, Dr. Jennings, and which I

consider to be of particular interest in connection with the subject under consideration.

The patient was a lady of no longer doubtful age whose vision in both eyes had been defective for a long time and had become more so of late.

The ophthalmoscope revealed in the first place the characteristic changes found in disseminate choroiditis. There were a considerable number of old atrophic patches with pigmented outlines near the macula lutea and farther toward the ora serrata. Between them and particularly in the peripheral parts were a similar number of recent yellowish white points of infiltration in the choroid in both eyes.

Aside from these, there was in the left eye an almost continuous ring around the macula lutea and some distance from it, which consisted of countless small white, shiny spots, some round, some oval, some forming lines or half-moons, the whole appearing very much as if white oil paint had been dashed against the retina. They were all separate from each other and seemed to have no tendency to coalesce. There were no hæmorrhages of any kind, the papilla was blushed as we see it in choroiditis, the retinal bloodvessels were apparently unaltered.

Repeated examinations of the urine failed to detect either sugar or albumen.

The appearance, just detailed, tallies excellently well with the description of Hirschberg's typical diabetic retinitis centralis punctata, except for the choroidal complication. However, the white patches were found in one eye only and there were no hæmorrhages. Nor can I tell, whether the white spots were due to former hæmorrhages.

The picture somewhat resembled, also, Fuchs' retinitis circinata.

THE TOTAL NUMBER OF CANDIDATES on whom the degree of Doctor of Medicine was conferred by the universities of the German Empire in the course of the academic year 1894-95 was 1102; of these 516 were conferred by Prussian universities and 586 by universities outside Prussia. The largest number of medical degrees (163) was conferred by the University of Berlin, next came Würzburg with 143, Munich being third, with 139.

CLINICAL MEMORANDA.

GUMMATA OF THE EYELIDS.

BY J. B. KEBER, M.D.,

PROFESSOR OF DISEASES OF THE SKIN, BEAUMONT HOSPITAL MEDICAL COLLEGE,
ST. LOUIS, MO.

Sam H., colored, aged 39, widower, had an initial lesion about three years ago which was followed by a large pustular eruption over the whole body.

I saw the patient in consultation and suggested appropriate treatment. A few weeks later all symptoms had disappeared. I saw him again about a year later and found a recurrent large pustular eruption, grouped, and confined principally to the limbs.

He stated that he had neglected treatment for the past nine months, his physician, in the meantime, having left the city. I began a new course of treatment, but after two or three weeks he disappeared. In January, 1895, he returned to the Clinic, his condition being as follows: On various portions of the body are gummata concerning which we need say nothing beyond noting the fact. There are two gummata in the forehead in the median line. A very large one on the left temple and a particularly large one behind the right ear. The most interesting lesion, from an ophthalmological standpoint, is the gummatus involvement of the eyelids, both upper lids being affected, the ulceration also extending to the lower lid on the left side. Of the two, the involvement of the left lids is the most interesting (see illustration). When first seen the left eye was completely closed by the œdematous thickening of the lids. The eye itself was found to be normal. The gumma was represented by an ulceration occupying the outer canthus and the border of the upper and lower lids, about one quarter of an inch in width and three-quarters of an inch in length. When next seen, three days later, the œdema had completely subsided under treatment and the gumma was represented by an ulceration an eighth of an inch wide ex-

tending along the free borders of the lids, except at one point on the upper lid where the process had extended deeply, causing a marked defect so that the patient was unable to close the eye. This lagophthalmus gave rise to some anxiety, but in the healing process the lid borders in the region of the outer canthus grew together for a distance of a quarter of an inch. The aperture was decreased correspondingly and as a result, the patient is able to close the eye perfectly. Nothing



has been attempted in this history but a short description of an interesting case, but it may seem also as a suggestion of nature's method of curing a lagophthalmus. The further course of the case presented very severe symptoms, among which may be noted a malignant gumma of the pharynx which brought the patient to the verge of starvation. This serious complication was eventually overcome and the patient now enjoys, apparently, perfect health.

OPHTHALMIC DIGEST.

By J. ELLIS JENNINGS, M.D.,

OF ST. LOUIS, MO.

THE EXCRETORY ORIGIN OF CERTAIN FORMS OF IRITIS AND CYCLITIS. SYDNEY STEPHENSON, (*The Lancet*, February 29, 1896).

The practical surgeon knows that most cases of iritis and cyclitis are associated with definite constitutional disorders, such as syphilis, rheumatism, gonorrhœa, or tuberculosis. Whilst this fact is universally admitted few writers appear to have allowed themselves to speculate as to the why and wherefore of the connection. In the hope of bridging this gap in our knowledge an attempt is made to examine and apply a theory brought forward recently by Dr. David Walsh to account for the origin of certain forms of dermatitis. Walsh believes that certain inflammatory affections of the skin are due in the first place to local changes set up by the excretion of irritant substances circulating in the blood. In this way he endeavors to account for the eruptions met with in the exanthemata, in gout, rheumatism, syphilis, and other constitutional disorders, and for the rashes which now and then follow the employment of such drugs as iodine, bromine, copaiba, anti-toxin and tuberculin. This hypothesis is supported by many facts. It is positively known that some organic and inorganic products when introduced into the blood may irritate one or several of the channels of exit from the body—for example, the bowel, kidney and skin. Thus the poison of scarlet fever, when eliminated by the skin or pharyngeal mucous membrane, gives rise to the characteristic eruption and sore throat, but when thrown off from the system by the kidneys causes nephritis.

Copaiba is usually eliminated from the body by the kidneys and mucous membrane of the lungs, but if for any reason the burden of excretion is shifted to the skin a measles like eruption will be the result. To put the matter shortly, he sug-

gests that these various eruptions take their point from acute or chronic excretory irritation of the skin. The irritant may be either in the shape of specific organisms or their products, of drugs, or of the chemical products of the faulty tissue changes.

We must next enquire whether we are justified in regarding the ciliary body as a secretory apparatus. The recent histological researches of Nicati upon animals, and of E. T. Collins in man, have placed the secretory functions of the ciliary body almost beyond the range of controversy. Collins has shown that finger-like processes may be demonstrated with the microscope in bleached sections of the anterior part of the uveal tract, more especially at the junction of the pars-plicata and non-plicata.

These pyriform depressions have a central lumen are lined by epithelial cells, open towards the interior of the eyeball and are said to be present in great numbers. Collins claims that they are glands concerned in the elaboration of the aqueous humor and nutrient fluids of the lens and vitreous. In pursuance of this idea, he regards serous iritis as primarily due to catarrhal inflammation of these glands. Alt, whilst admitting, on the one hand, that small pigmented processes spring in comparatively large numbers from the outer surface of the uveal layer of the pars ciliaris retinæ, denies, upon the other, that they are of a glandular nature. According to him, they are "simply pegs of cells projecting outwards from the pigment epithelium layer," and never possess a central lumen such as Collins has described. Alt believes that the ciliary part of the retina and the pigmented epithelium together constitute one large uveal gland by which the aqueous humor is secreted.

The iris and the ciliary body are anatomically continuous, hence the causes of iritis are, with scarcely an exception, those of cyclitis also.

Syphilis is the commonest cause of irido-cyclitis. Most writers credit the venereal complaint with 50 per cent. of all cases. That estimate is too low, however, especially if the hereditary diseases be taken into account. The proportion probably lies nearer 60 per cent. Rheumatism or gonorrhœa is responsible for most of the other cases, and we shall not be wrong if we lay 30 per cent. to the score of those ailments.

The remaining 10 per cent. is due to various causes, of which tubercle, gout, malarial and other fevers are among the more important.

In glancing over the foregoing list one can scarcely fail to note that almost all the ailments named are intimately associated with, if not actually caused by, micro-organisms. Two propositions, then, seem to be clear—first, that most inflammatory affections of the iris and ciliary body are dependent upon a constitutional ailment; and, secondly, that a majority of those ailments are of a bacterial origin. The conclusion follows that most forms of irido-cyclitis result from the action of micro-organisms.

An attempt will next be made to show that the immediate cause of these inflammations is to be sought in the vicarious glandular excretion of microbes or their products circulating in the blood or other nutrient fluids of the body. The following, reported by Gillet de Grandmont, is a case in point.

That surgeon was consulted by a young man convalescent from typhoid fever. The patient, who was thin and weak, had albumin in the urine and a jaundiced hue of the skin. His left eye was affected with iritis; it showed numerous posterior synechiæ and hypopyon, and its vision was so impaired that fingers could be counted with difficulty only at the distance of one metre. Grandmont opened the anterior chamber of the inflamed eye and inoculated a tube of agar-agar with some of the pus.

Two days later he obtained a pure culture, which, when, examined with the microscope, was found to be made up of the bacilli described by Eberth as present in the spleen, glands, and Peyer's patches of those suffering from typhoid fever. A small quantity of this culture was next injected into the vitreous humor of a rabbit, which, when killed three weeks afterwards, was found to have numerous typhoid fever bacilli in the liver and intestines.

It is maintained by some authorities—Leber, for example—that tuberculous inflammations of the iris is always secondary to a tuberculous lesion in some other part of the body. We are bound to assume then, that the transference of organisms takes place by means of the blood, and that their presence in the eye is due to a process of excretion by the ciliary body. Tubercle bacilli have been found in the iris by many

observers, and Weinbaum has succeeded in setting up tuberculous irido-cyclitis by inoculating a rabbit with diseased material taken from the human eye. Micro-organisms have been found in iritis associated with leprosy, and there is no doubt but that they are present in other forms of iritis due to infective disease.

CONCLUSIONS.

1. Most inflammatory affections of the iris and ciliary body are the outcome of constitutional ailments, which are in turn due to microbic infection.
2. In certain forms of irido-cyclitis specific micro-organisms have been found in the contents of the anterior chamber.
3. There exist good grounds for believing the proximate cause of all cases of endogenous irido-cyclitis to be the excretion by the ciliary body of micro-organisms or their products.
4. Therefore, bacteriological examination of the aqueous humor might furnish a ready means of detecting an organism in those maladies thought to be of infectious nature, such as rheumatism. It might also lead to a correct conclusion as to the cause of doubtful cases of irido-cyclitis.

TUMOR OF THE BRAIN INVOLVING THE OCULAR NERVES. CLARENCE R. DUFOUR, Phar.D., M.D., (*The Journal of the American Medical Association*, January 18, 1896).

Mrs. H., widow, age about 56 years, was referred to me at the Woman's Clinic, in the summer of 1894, on account of her eyes. Upon examination I found a complete paralysis of the muscles supplied by the third, fourth and sixth nerves, an exophthalmus and optic atrophy, all on the left side. I diagnosed the trouble as being in the brain, and so told the daughter who accompanied her. I could obtain no specific history. She had been operated upon some months previously for empyema of the left antrum, the opening being made in the cavity of the second molar tooth; there was free discharge drainage through the nostril when I saw her. I kept the antrum well washed out with sol. boric acid and gave her sat. sol. iodid of potassium, 10 gtt. three times daily, increasing one drop

daily, until she was taking 30 gtt. three times daily. Any attempt to increase this amount produced such constitutional disturbance that it could not be done. She was kept on this treatment until complete symptoms of iodism were manifested, when it was changed to $\frac{1}{6}$ gr. bichloride of mercury and 3 grs. potassium iodid three times daily, and continued for months with occasional intermissions of a few days. No result whatever from the treatment. About the middle of the summer she began to complain of intense pain in her head, which at first yielded to anodyne treatment but which soon became constant, and nothing but morphia would allay. About this time there began to be symptoms of loss of sensation on the side of the face and anæsthesia of the cornea, indicating that the first division of the fifth nerve was being implicated. This condition continued, with no abatement of symptoms; she had periods of hallucinations, and as her daughter was obliged to work away from home, and there being no one to leave the mother with, the latter was sent to the hospital. It was thought best to reopen the antrum so as to establish freer drainage; this was done, considerable pus escaping. It was then washed out with an antiseptic solution two or three times daily. An examination of the urine was made with results as follows: Amber in color, cloudy ppt., acid reaction; small amount of albumin, epithelial cells and pus were found. After operation on the antrum the pain in the head subsided for a few days but began again and continued with occasional periods of intermission. She was discharged from the hospital in the early part of November. Her condition gradually became worse, and her right eye began to show symptoms of incipient atrophy of the optic nerve and an external squint was manifested. She was able to go about until April, 1895, when she had to go to bed. She grew worse, her mind wandered and word deafness became manifest. On May 3, she died. On the following morning the skull was opened and the brain removed. It was put in a 2% solution of formalin, and a few days later the examination revealed the following condition: Gumma of dura mater in the anterior part of the left middle fossa, this involved by extension the left anterior temporo-sphenoidal lobe; the growth surrounded the internal carotid artery, exerting pressure on the cavernous sinus and involved the left optic nerve at the commissural origin; con-

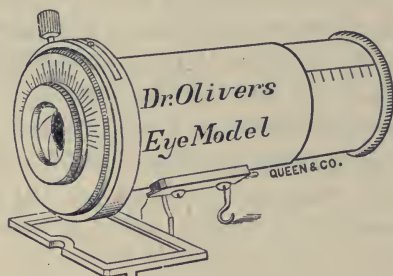
siderable œdema of the left anterior sphenoidal lobe. A second and smaller gumma involved that part of the brain mass which constitutes the left olfactory convolution; the third and smallest lay in the angle at the right optic commissure. The bone around the first growth had lost its compact covering and had become porous; the dura was very adherent to the bone. The ocular conditions during life were cleared up, I think, satisfactorily by the findings at the post-mortem. The cavernous sinus receives anteriorly the ophthalmic vein through the sphenoidal fissure, and on its anterior walls is found the internal carotid artery and the sixth nerve; on its outer wall are the third, fourth and the first division of the fifth nerve.

The pressure exerted by the tumor upon the sinus explains the paralysis of the muscles and the anæsthesia of the cornea, etc., this pressure, together with pressure upon the ophthalmic vein, accounts for the exophthalmus by preventing the return flow of blood through the angular and ophthalmic veins into the cavernous sinus. The pressure also being exerted upon the optic nerve in front of the chiasm, was the cause of the optic atrophy of left eye. The œdema of the temporo-sphenoidal lobe, would, I think, satisfactorily explain the word-deafness. The atrophy of the right eye was due to the smallest tumor in the angle of the right optic commissure. The cause of the external strabismus is somewhat obscure, as there was no implication of the third nerve on that side; my opinion is that there was pressure exerted upon this nerve in the sphenoidal fissure, probably as it passed through it.

AN ARTIFICIAL EYE INTENDED FOR THE STUDY
OF OPHTHALMOSCOPY AND THE OBJECTIVE
DETERMINATION OF AMETROPIA. CHARLES A.
OLIVER, M.D., (*New York Medical Journal*).

As far as practicable, this model has been constructed in imitation of the human eye. As shown in the sketch, it is composed of two telescopic brass tubes of about four and a half centimeters in length and two and a half centimeters in diameter each. These are so made as to allow the smaller one to slide into the other. At the far extremity of the anterior

and larger tube, there is an adjustable cylinder-lens that can be made of any desired strength. Just inside of the lens, in the tube, there is an accurately centered iris-diaphragm. More deeply situated in the tube there is a carefully ground bi-convex lens of twenty diopters' strength which represents the main focusing apparatus of the contrivance. The smaller tube has a double index running the greater part of its length upon its upper face. The indices starting from zero, run sequentially backwards to six along an "M" line, and forward to the same amount on an "H" line. To the back face of the tube, there is an arrangement by which an adjustable flat disc can be screwed into position. This disc contains a colored representation of the normal fundus-oculi engraved upon enameled paper.



Starting with a focal distance of five centimeters, which is marked upon the smaller tube as zero, emmetropia is reached. By gradually withdrawing the smaller tube, the exact equivalents of axial myopia are obtained. By slowly pushing the smaller tube into the larger one from the point of registry of emmetropia, increasing amounts of axial hypermetropia are gotten. If it be desired to study astigmatism, the cap containing the cylindrical lens can be adjusted to the face of the large tube.

The appearance of the normal eye ground is given, and the student is thus enabled at a moments notice to have a proper ophthalmoscopic representation under almost the same conditions as when they are studied in the living subject.

Practically, in all of these procedures, the method is the same as should be pursued were the artificial eye a living organ. The contrivance is manufactured by Queen & Co., of Philadelphia.

CASE OF CHOROIDAL HÆMORRHAGE FOLLOWING EXTRACTION. ENUCLEATION A WEEK LATER OWING TO SEVERE PAIN. J. A. SPALDING, M.D., (*Archives of Ophthalmology*, Vol. XXV, No. 1).

Three or four years ago I operated successfully by simple extraction on the right eye of a healthy and robust country patient of 64 years. The primary result was very good. Later on, the capsule shrivelled, but was divided with good result. In 1894, he consulted me for blindness of the left eye, and insisted on having the extraction performed. Physically he had grown very decrepit since I had seen him two years before. The left eye exhibited a very mature yellowish cataract. There was no abnormality in the function of the eye, perception of light was good, and field perfect, but I was inclined to think that the iris trembled as if the lens were slightly dislocated.

The eye being thoroughly sterilized, simple extraction was begun on January 10, 1895. Incision entirely in the cornea, and embracing nearly half of the circumference. After the incision was completed, the cornea collapsed as we often see in the aged. The speculum was then held wholly away from the globe by an assistant, but the lids were still kept well apart. The capsule was then divided with a T-shaped incision, and the lens gently and smoothly expelled. The speculum was then removed, whereupon the patient was observed to squeeze the lids together.

Some pain, but not much, was complained of. In a minute or two some fluid vitreous exuded from between the lids. On inspecting the globe a large bead of vitreous was seen lying between the lips of the incision. Then prolapse of iris ensued. This being replaced, it again came out of the eye. It another minute there was a gush of blood. The patient was raised in bed, and a compress bandage applied. Pain increasing, morphine was given. Hæmorrhage did not last long, and on the following day there was none. The globe remained painful, and in spite of sedatives grew worse day by day. The clots were removed from between the incision, but came again. Finally, one week after the extraction, the patient yielded to our often repeated proposal to have enucleation done, and it was done with relief to all the symptoms, including at one time delirium.

The hæmorrhage was macroscopically discovered to originate from the anterior portion of the choroid, directly behind the ciliary region.

It is my opinion that the hæmorrhage was due to relaxation of the suspensory ligament, permitting too rapid an extraction of the lens, as a result of which the degenerated vessels in the region of the incision gave way, with the usual result. I would call attention to the fact, that this case is nearly the only one which I am able to find in which successful extraction in the same patient has been followed with the accident in extraction on the second eye. For this reason it would seem probable that the marasmic condition of the patient must be held as the exciting cause.

THE SPIDER-CELLS OF THE OPTIC NERVE
AND RETINA. DR. RICHARD GREEFF, Berlin, (*Archives of Ophthalmology*, Vol. XXV, No. 1).

Thanks to the introduction of new methods of examination, we have in recent years made a decided progress in the study of the histology of the nervous system. Golgi and Ehrlich have shown us methods by means of which we can demonstrate isolated cells, with their processes, in the midst of a labyrinth of other cells which remain unstained. The most serviceable method in this respect is the one devised by Golgi, which has been as successfully modified by Ramon y Cajal. This method, employed upon the optic nerve and retina, has demonstrated that these structures contain histological elements identical with those of the central nervous system—a fact which only serves to verify what the embryology of these parts teaches.

METHOD OF EXAMINATION.

Small pieces of the nerve taken from the body soon after death, are put into a solution of osmic acid 1%, 1 part; potassium bichromate, $3\frac{1}{2}\%$ or 1–2% solution of sodium or ammonium bichromate, 4 parts, when they are allowed to remain 12 to 48 hours. After drying them with filter paper, they are put into a 0.75% solution of nitrate of silver, for 12 hours or more. It requires considerable experience with the method to learn

just how long to keep the objects in the first solution, to get them impregnated to the best advantage. From the silver solution the pieces are put, after rinsing in water, into absolute alcohol for $\frac{3}{4}$ of an hour, thence into thin celloidin for five minutes, and fastened upon a cork; when, after a short time, they are ready to be cut into sections. If the first few sections contain no stained cells, we bring the objects back into the first solution and repeat the entire procedure. Although the cells are easier to stain in the optic nerve than in the retina, the process with them also requires considerable experience and patience.

The neuroglia cells which we find in the optic nerve are identical with those found in the brain. They take on a deep brown or black stain, while the surrounding tissue is of a delicate yellow. Cell-body and cell-prolongations are impregnated equally well, so that we are not able to detect a nucleus or the minute structure of the protoplasm. The picture they present under the microscope may be compared to a silhouette. In the optic nerve the spider-cells are most abundantly situated between the nerve-fibres, although some are found between the bundles of fibres. Their prolongations are not confined within the limits of a single bundle of nerve-fibres, but frequently pass from one to another. In the papilla the spider-cells become more like those described by Ramon y Cajal, in his examination of the retina; they are much smaller, irregular in shape, the prolongations being more numerous, shorter, and crowded together. The most of them pass forward to the surface of the papilla, and gradually pass over into the spider-cell form, as we find them in the retina.

In the retina we find the spider-cells in the nerve-fibre layer and ganglion layer, the processes, in the latter case, often extending into the inner molecular layer. I have little to add to what has been said of these cells by Cajal and Kallins. They lie in close apposition, especially near the papilla of the optic nerve. They vary considerably in shape, some being star-shaped, others round, oval, or triangular. Their shape changes to some extent with their location, those found near the membrana limitans being, as a rule, flat or triangular, with the broad side directed toward the membrane. Their prolongations are short, very delicate, and present in large

numbers. They are sometimes arranged in bundles, in which case a bundle emanates from a single pedicle. The prolongations have not, like those in the optic nerve, a tendency to disperse in all directions, but have a tendency to pass to the interior—that is, the ones emanating in layers of the nerve-fibres pass into the layer of ganglion cells, and those originating in that layer pass to the inner molecular layer.

Of late the neuroglia tissue is looked upon not only in the light of a supporting substance, but as having the *function of isolating the nerve fibres*. The prolongations of the neuroglia cells, interlacing, as they do, between the nerve-fibres and cells, prevents them from coming in direct contact, and may be compared to the insulating silk about electric wires. The ganglion cells thus are enabled to transmit impressions of light, received from the rods and cones through the nerve-fibres of the optic nerve, to the centres in the brain.

A CASE OF RETINAL HÆMORRHAGE. M. L. FOSTER, M.D., (*New York Medical Journal*, February 1, 1896).

During the present age of bicycling the following case may be of interest, as it illustrates one of the possible dangers of an immoderate degree of violent exercise. But I should not like to be understood to magnify this danger as one particularly likely to result from this form of sport.

A young man, 20 years of age, while “scorching” on his bicycle, suddenly noticed a mist over his left eye. This haziness persisted, and on the next day he consulted his family physician, by whose advice, a few days later, he came under my observation.

Vision $\frac{20}{100}$. Ophthalmoscopic examination revealed a large hæmorrhage in the macular portion of the retina in process of absorption. A week later the effused blood had become about half absorbed and the vision seemed a little clearer. An examination of the heart and kidneys revealed no lesion of these organs, and I could detect nothing in the appearance of the remaining vessels of either retina, or from palpation of the radial and temporal arteries, to suggest a weakness in, or disease of, the vascular walls. There was no history of syphilis or any other constitutional disease which I could elicit.

ACCOMMODATION IN THE AMAUROTIC EYE. C.

LEUNG KAM-ANG, M.D., *Archives of Ophthalmology*, Vol.
XXXV, No. 1, 1949

Aside from its pathological interest, our case answered all requirements for deciding a physiological question, viz.: in regard to the equal impulse of accommodation in both eyes. Hess, Greeff, and others proved that in anisometropia the accommodation of both eyes is equal under all circumstances. Greeff found the same in a blind eye, the fellow of which had

SOCIETY PROCEEDINGS.

WESTERN OPHTHALMOLOGICAL, OTOLOGICAL AND LARYNGOLOGICAL SOCIETY.

The organization meeting of the Western Ophthalmological, Otological and Laryngological Society was held at Kansas City, Mo., on April 9 and 10.

It was called to order by Dr. J. H. Thompson, President of the Kansas City Academy of Medicine. The Doctor made a few remarks on the object, aims and necessity of such a Western society and congratulated Kansas City on the honor of having the first meeting, as well as being the prime mover in its formation. He was sure the Society would be a large one, and he thought all Western men engaged in the above specialties should join and assist the work. He introduced Dr. C. Lester Hall, President of the Missouri State Medical Society, who extended a cordial welcome to the Society on behalf of Missouri and Kansas City.

With a few brief words Dr. H. Z. Gill, of Pittsburg, Kan., made response.

The Society then elected the following officers:

President—Dr. Adolf Alt, St. Louis.

Secretary—Dr. Hal Foster, Kansas City.

Treasurer—Dr. W. L. Drayton, Lincoln, Neb.

First Vice-President—Dr. B. E. Fryer, Kansas City.

Second Vice-President—Dr. Wm. C. Pipino, Des Moines.

Third Vice-President—Dr. J. W. Martindale, Minneapolis.

The constitution and by-laws as framed by the committee consisting of Drs. Loeb, Pipino and Dayton, were adopted after some discussion. They made ample provision for the keeping of undesirable elements out of the Society which is open to and invites all medical men engaged in the specialties of eye, ear, nose and throat work, who are of a recognized reputable character.

The papers which were read at this meeting were full of interest and from its beginning this Society may hope for a great and useful future. If there was any clique engineering

things and thereby keeping useful members away, as has been alleged, the writer surely did not become aware of it.

The purely ophthalmological papers read at the meeting were:

"Diabetic Retinitis," by Adolf Alt, M.D.

"Errors in the Literature on Javal's Ophthalmometer for the Measuring of Astigmatism," by G. W. Grove, M.D.

"Which Operation Should a Beginner Select for the Extraction of Senile Cataract," by J. H. Thompson, M.D.

"A Case of Diphtheritic Conjunctivitis," by H. Z. Gill, M.D.

Some fifty members were enrolled and the Society adjourned to meet at St. Louis on the second Thursday and Friday in April, 1897, when we hope to see a large and representative gathering.

DR. KOSTER has been elected Professor on Ophthalmology at the Leyden University, Holland.

THE TWELFTH INTERNATIONAL CONGRESS OF MEDICINE will convene at Moscow, Russia, on August 19, 1897, and last till August 27.

THE NEW YORK OPHTHALMIC AND AURAL INSTITUTE has received a legacy of \$500 from the late A. Bernheimer, of New York, and a donation of \$5000 from Miss Ch. van den Heuvel.

BLASTOMYCETES IN SARCOMATA.—Roncali (*Il Policlinico*) found in five sarcomata taken from different parts and different tissues, parasitic forms analogous to those described by Sanfelice, and by the author in cases of ovarian adeno-carcinoma. These parasites (that is, those met with in sarcoma) react to specific staining reagents, and resist the action of acids and alkalies in the very same way as the blastomycetes found in adeno-carcinoma. They may be intracellular, extracellular and even (exceptionally) intranuclear; they multiply by budding; in the young state they may be seen without membrane and with abundant chromatic protoplasm; they may be homogeneous or partly granular or degenerate, that is, wanting in protoplasm, or furnished with protoplasm so modified as to lose all property of staining with aniline dye.

"A Brief Résumé of a Comparative Study of the Ophthalmoscopic Conditions Seen in Interstitial Nephritis, etc.
Ch. A. Oliver, M.D.

"History of a Case of Successful Intracapsular Extraction of Lens Capsule and Lens Debris with Recovery"
By Ch. A. Oliver, M.D.

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ORIGINAL ARTICLES.

NEW TREATMENT FOR OPTIC ATROPHY BY THE
COMBINED USE OF GLONIN AND
STRYCHNINE, WITH A REPORT
OF TWO CASES CURED

BY L. R. CULBERTSON, M.D., ZANESVILLE, OHIO.

OCULIST TO U. S. PENSION BUREAU; CITY HOSPITAL; C. & M., V. & B., Z. & C. RY'S, ETC.

CASE. I.—March 1, 1896. Mr. L. W., age 56. Retinoscopy shows +2 D. sp. required in each eye. With this glass V. Rem. R. E. = $\frac{5}{36}$ in the outer half of the field only. L. E. = $\frac{5}{36}$ on inner half of the field only. V. = $\frac{5}{36}$. Pupillary reaction to light in all parts of the field is sluggish; normal reaction in accommodation. Oph. ex. R. E. Disc hazy from severe papillitis, its margins obscured and somewhat cupped; veins greatly engorged, and arteries too fine. L. E. Inner half of disc hazy, outer half pale and showing marked atrophic cupping; veins greatly enlarged, arteries too fine; urine normal; no rheumatism, gout, syphilis or alcoholism. Patient smokes eight pipes of tobacco a day. No lead poison or sunstroke. He was struck on the right orbital arch by a buzz-saw two years ago and knocked unconscious.

He was given iodide of potash and mercurial inunctions, and $\frac{1}{15}$ gr. strychnia *ter die* internally. March 10. Same treatment with $\frac{1}{30}$ gr. strychnia injected into the temple, and

the strychnia internally ordered stopped. March 18-21. Injections of $\frac{1}{15}$ gr. strychnia. March 22. Injection of $\frac{1}{12}$ gr. strychnia. March 24. Injection of $\frac{1}{10}$ gr. strychnia nit. V.₂ Rem. = $\frac{5}{24}$ V. prox. = $\frac{2}{30}$ Sn. March 27 to April 5. Hypodermic injections of $\frac{1}{10}$ gr. strychnia, and comp. syrup hypophosphites *ter die* internally. April 5. Oph. ex. R. E. Veins enlarged and tortuous; arteries too fine both on the disc and in the stroma (to 3d°). Disc very pale and showing deep atropic cupping in outer half, the inner half hazy.

L. E. The same condition, save arteries are a little larger in size. Iodide and mercury stopped. April 7 to 13. Hypodermic injection of $\frac{1}{10}$ gr. strychnia nit.; also internally $\frac{1}{100}$ gr. glonoin three times daily. After exhibition of the glonoin the vision improved from $\frac{5}{24}$ Rem. to $\frac{5}{12}$ Rem., and $\frac{2}{30}$ Sn. to $\frac{1.2}{30}$ Sn. The arteries of the retina increased in size; but the medicine did not give headache.

April 13 to 15. Strychnia stopped for several days and $\frac{1}{50}$ gr. of glonoin given internally. This produced fullness of the head. Oph. ex. shows that the retinal arteries are twice as large as when they were last examined.

April 17. Continued glonoin and gave injection of $\frac{1}{10}$ gr. strychnia nit.

April 19. V.₂ = $\frac{5}{8}$; V. prox. = No. 6 Jaeger. Arteries normal in calibre in the left, and slightly diminished in size in the right eye. Small arteries of the disc, which were scarcely visible before the exhibition of the glonoin, are now normal in size. Vessels are now seen in all parts of the retina, and are only slightly diminished in size in the periphery.

April 21. V.₂ = $\frac{5}{8}$; V. prox. = Jaeger No. 3. Arteries normal in size in both eyes; veins quite large. Same treatment.

April 24 to 28. V. Rem. $\frac{5}{8}$; V. prox. J. 3. $\frac{1}{50}$ gr. glonoin twice daily. Hypodermic injection of $\frac{1}{8}$ gr. strychnia nit.

April 28. V. Rem. $\frac{5}{8}$. Papillo-retinitis in both eyes. This accounts for the diminished V. Rem. The glonoin, by throwing too much blood into the retina, has caused the retinitis, hence it should not have been given so often, or in so large a dose, perhaps. I now stopped the glonoin and gave iodide potassium and mercurial inunctions. Strychnia nit. $\frac{1}{8}$ gr. hypodermically.

May 1. Same treatment. V. = $\frac{5}{8}$.

May 4. V.= $\frac{5}{6}$ nearly. Oph. ex. R. E. Retinal haze cleared. L. E. Slight papillary haze; arteries smaller than when taking glonoin. Has not taken any glonoin for a week. Mercury and iodide stopped. Strychnia nit. $\frac{1}{7}$ gr. hypodermically.

May 7. V. Rem. $\frac{5}{6}$; V.₂ prox. J. No. 2.

May 8 to 9. No retinitis in the right eye and scarcely any in the left. I gave him hypodermically $\frac{1}{6}$ gr. strychnia nit. and ordered $\frac{1}{100}$ gr. glonoin *bis die*.

May 12. He sees several letters of the $\frac{4}{4}$ type, and several words of J. No. I.

CASE II.—Miss E. R., aged 28 years. With +.75 D. cy. at $90^{\circ}=\frac{5}{12}$. L. E.+4. D. cy. at $105^{\circ}=\frac{5}{24}$. Oph. ex. Disc very pale, and outer half cupped; vessels diminished in size. R. E. Disc hazy and very pale in color; inner half deeply cupped. Both arteries and veins too fine, both on disc and in stroma. Had optic neuritis in this eye 15 years ago, caused by eye-strain. The optic neuritis and resulting optic atrophy of the other eye were consecutive to this. No history of sun-stroke, injury to head or back, or rheumatism. Reflexes normal.

March 18, 1896, I commenced hypodermic injections of strychnia nitrate $\frac{1}{40}$ gr., which were continued daily for three weeks, until I gave $\frac{1}{8}$ gr. At the end of the first week V. R. E.= $\frac{5}{8}$ and $\frac{1.5}{.30}$ Sn. At the end of the second week V. R. E.= $\frac{5}{6}$ and $\frac{1}{.30}$ Sn. At the end of the third week V. R. E.= $\frac{5}{5}$ and $\frac{6}{.30}$ Sn. L. E. V.= $\frac{5}{24}$ and $\frac{4}{.30}$ Sn.

The patient went home at this time, and I prescribed for her $\frac{1}{100}$ gr. of glonoin three times daily, and $\frac{1}{15}$ gr. strychnia sulphate twice daily internally. One week later she was ordered to take $\frac{1}{50}$ gr. glonoin morning and night, and $\frac{1}{10}$ gr. strychnia at noon.

One week later V. Rem. R. E.= $\frac{5}{5}$, L. E. $\frac{5}{24}+$; V. prox. R. E.=No. I Jaeger, L. E.=No, VII Jaeger (improvement on glonoin from No. 4 Snellen to Jaeger VII in eighteen days). Oph. ex. R. E. Vessels are seen in all parts of the retina and the disc is not so pale and not so much cupped. L. E. Vessels can be seen in all parts of the retina and the disc is not so much cupped. There is no retinitis or papillitis in either eye, and the retinae look bright and healthy throughout. The arteries are about normal in calibre. I ordered $\frac{1}{15}$ gr. strychnia

nia sulphate *ter die*, and $\frac{1}{50}$ gr, glonoin morning and evening. A peculiar action of the glonoin in this case, as well as in the other, was the marked diminution of the cupping of the discs after it had been taken for a time.

REMARKS.

In Case I, the V. Rem. had been brought up to $\frac{5}{24}$ by enormous doses of strychnine and then the improvement ceased, but immediately upon the exhibition of glonoin the vision rose rapidly in a few days. The same may be said of Case II. The ophthalmoscopic examination revealed beautifully the vaso-dilator action of the glonoin.

Heretofore the treatment, *par excellence*, of optic atrophy has been by strychnine. In optic atrophy the calibre of the arteries is always greatly diminished, thereby causing anæmia, loss of function, and subsequent atrophy of the nerve, or portions of the nerve and retina. We know that a small dose of strychnine contracts the arteries and stimulates the heart, and raises the blood-pressure, hence increases nutrition. Yet, we know that enormous doses of strychnine make the lumen of the vessels very small, hence must diminish the current going to the nerve; therefore glonoin is the remedy *par excellence*, because it counteracts the contraction of the retinal arteries which occurs in optic or retinal atrophy, but it also counteracts the over-contraction of the vessels caused by the strychnia, and at the same time by dilating the vessels allows strychnia to invest every particle of the nerve-tissue of the retina and optic nerve, which it could not do if the vessels were narrowly contracted or obliterated.

Strychnine undoubtedly stimulates the cerebro-spinal axis more than any known agent, but if optic atrophy is not a centrifugal symptom—as in locomotor ataxia—how could we expect to restore sight where the absence was due to narrowing or obliteration of the retinal or ophthalmic arteries, unless we could first dilate those arteries? Nitrite of amyl has long been used in this disease, and rightly used, but its effects are too transient. Glonoin is powerful and lasting, and not dangerous in its effects.

I noticed some time ago that glonoin aided the vision considerably in Bright's disease, but attributed this to its effect on the kidneys in eliminating urea and dilating vessels through-

out the body. Now I believe its beneficial effect in optic atrophy of Bright's disease to be due to its dilating effect on the arteries of the retina. This is a drug of which we can make use in several eye diseases. Let our ophthalmologists experiment with it, and report the results of their investigations. Try it in all forms of optic atrophy, retinitis pigmentosa, hereditary atrophy, atrophic choroiditis, the amblyopias, psychical blindness, quinine, lead, tobacco and all the toxic amblyopias, either alone or combined with strychnia. I believe that if it is used in retinitis pigmentosa, conjoined with strychnia, some remarkable results may follow.

It might be advisable, in some cases, to try minute doses of glonoin hypodermatically in the temple and, if well borne, to increase the dose. In this way it passes more directly into the retinal circulation, and might dilate some arteries that would not respond to internal treatment.

This drug may have been used in all these diseases, but after a careful search over a large amount of ophthalmic literature, I fail to find any mention of its use.

Antipyrin has been highly recommended for this disease; I have not used it myself, but theoretically it would be contraindicated, because of its depressing effect on the heart and circulation.

Electricity is beneficial, but it is a much over-lauded remedy.

In using glonoin it should be gradually pushed to its full physiological limit, and strychnia by the mouth or, better, hypodermatically, should be combined with this treatment to secure the best results. A nutritious diet and complete rest, both mental and physical, should be combined with this.

In using glonoin the eye-ground should be examined every few days, and if it produces severe papillitis or retinitis, its use should be discontinued until the retinitis has been cleared by absorbents.

NOTE.

May 27. Case I. V_2 Rem. = $\frac{4}{5}$; V_2 prox. = J. 2. Arteries normal in size in all parts of the retinae of both eyes; paleness of discs much diminished; arteries normal on discs. A peculiar feature in this case, as well as in Case II, is that the cupping of the discs has been greatly lessened by the

glonoin treatment. I can not account for this, but will advance a theory: It is my belief that, in optic atrophy the cause of cupping of the discs is that the contracted condition of the arteria centralis retinæ diminishes the amount of blood passing through the nerve, hence this would make the nerve smaller, and cause a tendency to recede. Now, the glonoin, by increasing the blood-pressure, would expand the nerve and tend to force it forward, and thus lessen the cupping.

May 27. Case II. V. R. E. Rem.= $\frac{4}{4}$; L. E.= $\frac{4}{8}$. V. prox. R. E.=J. No. 1; L. E.=J. No. 3. Improvement in left eye from J. No. VII, to J. III, in one month. Is taking $\frac{1}{15}$ gr. strychnia twice daily by the mouth, and $\frac{1}{60}$ glonoin twice daily. Later on I will give this amount once a day and gradually diminish the dose. Arteries normal in calibre, and paleness of discs greatly diminished. No retinitis or papillitis.

Case I is receiving hypodermic injections of $\frac{1}{8}$ gr. strychnia twice a week, with $\frac{1}{100}$ gr. glonoin by mouth twice daily. I will gradually lessen these doses.

June 6. Case I has been taking glonoin alone ten days, and V.₂ prox.=Jaeger No. I.

A CONVENIENT FORM OF FIXATION FORCEPS.

BY DR. LUCIEN HOWE, BUFFALO, N. Y.

The tendency of the eye to roll upward when irritated, is a difficulty attending several operations. In iridectomy, for example, the surgeon, holding the iris forceps in one hand, the scissors in the other, often wishes he might have a third hand with which to rotate downward the eye upon which he is about to operate, which persistently and obstinately rolls upward. At this critical moment the fixation forceps are usually given to an assistant, but it is not always possible to have one trained to rotate the globe without making undue pressure upon it. Indeed, this danger is so great that many operators, when making an iridectomy, direct the patient to look downward, trusting to the chances of his obeying rather than risk the undue pressure which might be made upon the globe. Too often, however, it happens that just as the iris is seized, the patient, in

his fright and sudden pain, loses his self-control, the cornea suddenly flies upward beneath the lid, before the iris forceps can be withdrawn, and the result is a laceration of the iris or possibly even the dislocation of the lens. In order to avoid this difficulty, various attempts have been made to modify fixation forceps so that the globe could be held down. Some experience with a simple appliance which might be called "self-fixation forceps" has led me to hope that the mechanical difficulty referred to is one that may be overcome. A glance at the simple instrument represented in the accompanying plate shows what it is and how it is used, better than any description that could be given. With the biting end, a considerable fold of the conjunctiva is caught just below the lower margin of the cornea, and the globe, being rotated downwards, the projecting pin on the forceps is caught under the bar which goes from one side to the other of the spring-speculum. Many specula are not provided with these small bars, which are intended to fold back the lashes from the globe, but it is, of course, easy to attach a bar of the fine wire to almost any



of the specula commonly in use. When the fixation forceps are thus made fast to the globe and adjusted under the bar of the speculum it is impossible for the eye to roll upward, and although lateral movements of the globe can be made, they are considerably restricted. I have found, however, that if the bar on the speculum is notched near the center, the projecting pin on the forceps can be slipped into this notch, and thus even movements from side to side are lessened. If one does not care to be troubled with adjusting the pin on the forceps to the speculum, but prefers to have the forceps held by an assistant, this can be done safely and easily by an unskilled hand. In order to hold the globe in any position it is simply necessary to grasp the forceps as they lie on the cheek with the thumb and finger. The hand of the assistant is well removed from the field of operation and it is practically impossible for him to make any pressure on the globe.

OBSERVATIONS CONCERNING THE ENDOTHELIAL LINING OF THE ANTERIOR CHAMBER IN HEALTH AND DISEASE.

[WITH MICRO-PHOTOGRAPHS.]

BY ADOLF ALT, M.D., ST. LOUIS, MO.

[CONTINUED FROM MAY NUMBER.]

III. THE ENDOTHELIUM COVERING THE ANTERIOR SURFACE OF THE IRIS.

Although every text book speaks of the anterior endothelial covering of the iris and many of them of an endothelial "membrane," descriptions of what seems to be the actual condition are, it seems, not to be found.

Since Rabe's description was published, it seems to have been adopted more or less by everyone. In my book on the histology of the eye I took the same stand, based on what I had then seen myself and compounded on the difficulty I had experienced in seeing what I thought I could call the endothelium of the anterior surface of the iris. I had tried at that time to isolate its cells in many instances and had in a few succeeded in getting little pieces of a cellular membrane which I thought represented this endothelial coat. I stated then that the endothelial membrane of the anterior iris surface was made up of the flat, polymorphous, mostly quadrangular cells with a large round nucleus and that I had seen such cells arranged tile-like, overlapping one another, just as Jul. Arnold had described them. In making these statements I felt, however, constrained to add, that these endothelial cells must evidently be but very loosely connected with the underlying tissue or the very easily destroyed, which might explain the difficulty experienced in finding them.

I know now, that what I had seen in those cases was pathological, and that I have to correct my statements.

The endothelial cells covering the anterior surface of the iris can only be properly seen in the finest sections of this sur-

face. They can not be scraped off in larger masses, except from a diseased iris, when a newformation of tissue has taken place, as we shall see presently.

By making many efforts in this direction I have succeeded in getting a larger number of good surface sections of the iris which show that the endothelial cells do not form a distinct membrane as they do on Descemet's membrane. The cells on the contrary are irregularly distributed over the uneven surface of the iris, but may be traced into all its wrinkles and crypts. (See Figs. 1 and 2). The individual cells vary very much in shape; they are flat, mostly round, or somewhat branched, and have a round nucleus.

In the accompanying photographs (Figs. 1 and 2) it was necessary to retouch these cells with some sepia before the electric reproduction and this is the cause of their dark appearance. As a rule, they do not take up staining materials as well, as the other cells of the iris surface, which are, moreover, naturally pigmented cells.

The difficulty, then, in distinguishing these endothelial cells does not lie in the fact, that they are so loosely connected with the underlying tissue, or so friable, but in that they are so firmly attached to the pigmented underlying tissue. This is, furthermore, made more difficult, since the surface of the iris is so uneven and, therefore, larger continuous views can be obtained only under very favorable circumstances.

In pathological eyes conditions are often found on the anterior surface of the iris which seem to leave no doubt as to the existence of this endothelial covering as well as to the possibility of its proliferation.

Figures 3, 4, 5 and 6 are given in order to show the most conspicuous pathological change I have observed on the anterior surface of the iris, namely a newly formed connective tissue covered, towards the anterior chamber, with a terminal layer of endothelial cells.

It is particularly in eyes which have undergone considerable hæmorrhages and in glaucomatous eyes in which we meet with this newformation. Sometimes it covers only a part of the anterior surface of the iris, as in Fig. 3, which is taken from a glaucomatous eye and in which the newformation lies about midway between the pupillary and the ciliary margins.

In Fig. 4 (taken from an injured eye) this newformed tis-

sue is about half as thick as the iris and covers its whole anterior surface. It is such a delicate, transparent tissue, that it was not observed during life and, yet, it contains a well organized network of capillary and even larger bloodvessels, as is better shown in a section through it and parallel with the iris surface as reproduced in Fig. 5.

In a larger number of cases the newformed connective tissue is most developed at the pupillary edge and its contraction causes the clinically well-known symptom of the ectropium uveæ. In Fig. 4, the section is taken from near the pupillary edge and the uvea may be seen in the corner pulled over the pupillary edge and a good ways outward on the anterior surface of the iris. It so happens that I have been unable to obtain reproducable photographs from the best specimens of ectropium uveæ, that I possess, on account of the staining material used in preparing these specimens. Fig. 6, however, gives a very good idea of the conditions. Here the prismatic sphincter edge of the iris is changed into a thumb-shaped edge by the contraction of the newly formed connective tissue which not only has pulled the uvea forward, but has also bent the sphincter towards the anterior chamber.

In Fig. 3 the covering layer of endothelial cells is somewhat detached from the newly formed connective tissue. In the antero-posterior section these endothelial cells appear spindle-shaped with a round nucleus and their ends somewhat overlap each other in the manner of tiles. This is probably what Arnold and myself have seen formerly.

I am unable to say whether this new tissue is altogether and simply due to a proliferation of the anterior endothelium of the iris; but I think there is no doubt, but what it is in a great measure the result of such a proliferation.

[TO BE CONTINUED.]

THE SIXTY-FOURTH ANNUAL MEETING of the British Medical Association will take place at Carlisle on July 28 to 31. The officers of the Section on Ophthalmology are: President, David Little, M.D.; Vice-Presidents, J. B. Lawford, F.R.C.S., P. M. Maxwell, M.D., F.R.C.S.I. The Honorary Secretaries are: W. M. Beaumont, M.R.C.S.; G. McKay, M.D., and F.R.C.S., Ed.

THE NEW MEDICAL LAW OF OHIO AND ITS RELATION TO OPTICIANS AND JEWELERS.

BY L. R. CULBERTSON, M.D., ZANESVILLE, OHIO.

The new Kimmel Medical Law will probably prevent jewelers and opticians from fitting or prescribing glasses without a prescription from an oculist or physician. Clause *f* of the bill reads as follows:

"Any person shall be regarded as practicing medicine or surgery within the meaning of this act who shall append the letters M.D., or M.B. to his name, or for a fee *prescribe, direct, or recommend* for the use of any person, any drug or medicine or *other agency* for the *treatment, cure or relief* of any wound, fracture, or bodily injury, *infirmity or disease,*" etc., [*italics mine*].

Glasses are given for the relief of a bodily infirmity or disease. The ophthalmologists and opticians asked the Board for their construction of this clause. On May 26, the Board asked some of the leading opticians and oculists to appear before them and state their views in the matter. About twenty oculists were present, among them Dr. S. C. Ayres, Cincinnati; Drs. Milliken, Baker and Scott, Cleveland; Dr. F. Clark, Columbus; Dr. Snider, Toledo; Dr. L. R. Culbertson, Zanesville; Drs. Blake, Brown and Wright, Columbus. The first seven named gentlemen made speeches.

Some of the oculists were in favor of stopping the opticians from selling any glasses without a prescription from an oculist; others thought that we had not yet reached the millennium in this business, and that we could not teach the public at once the difference between the oculist and optician, and that the public, particularly old people, would object to paying oculists' prices for simple age glasses, and in some cases it might necessitate their going fifty or more miles to secure the services of an oculist, and that they might not be able to incur this extra expense. The consensus of opinion was that they should be prohibited from selling glasses without a prescription excepting in presbyopic cases.

One speaker stated that they should not be allowed to fit any glasses, because in 99 out of 100 cases the glass was not correct, and not only were the patients' eyes injured thereby, but his pocketbook as well.

The writer stated that it was almost impossible for an optician to give the proper glass—if he did so it was just by chance—because this could not be done unless the eyes were thoroughly atropinized; or the retinoscopic test—the most scientific and and difficult of all tests—was used. Opticians could not use either of these tests. Also, that all eyes should have an ophthalmoscopic examination to determine if there be a disease of the fundus or system. Opticians know nothing of the diseases of the eye.

All contended that their object was not so much to protect themselves (although they need it badly, as their business has been dreadfully cut up by opticians, quacks and Jew fakirs—who go from farm-house to farm-house, peddling worthless glasses at high prices), but to protect the eyes and purses of the ignorant public. The gullible public have the idea that because the optician advertises that he is the man to go to. They can not get it through their heads that we are not permitted to advertise, and half of them think the opticians know more than the oculists.

The oculists thought that if the opticians were permitted to sell age-sight glasses that they would not attempt to injure the law in the courts; and, perhaps, not attempt to get a bill through the next Legislature. The writer thought that differences, if any, could be adjusted by oculists sending their prescriptions to opticians, and if patients could not afford to pay for examination and glasses, then the oculist could charge simply for the glasses (the optician's price) and furnish them himself.

The Board, under advice of their attorney, will give their opinion shortly.

E. A. NESNAMOW recommends the application of iodine in trachoma. He use a one per cent. solution of iodine in liquid vaseline in cicatricial trachoma with infiltrations of the cornea, pannus, ulcers and superficial opacities. In other forms of trachoma he applies a three to five per cent. solution of iodine in vaseline mixed with a small quantity of sulphuric acid.

OPHTHALMIC DIGEST.

BY J. ELLIS JENNINGS, M.D.,
OF ST LOUIS, MO.

THE FORMATION OF THE STUMP AFTER AN
 ENUCLEATION. GEO. F. SUKER, (*Annals of Ophthal-*
mol., Vol. IV, No. 1.)

[illegible]

Now bring your upper and lower rectus abdominis a few centimeters together, then bring your abdominals together and engage your glutes. Then gently engage your psoas to stabilize your pelvis and brace the spine from above and below. This is the starting point and the end point with a continuous cycle of breathing in and out. The muscle spread is a good indicator of the degree of thoracic and lumbar extension of the spine as well as the degree of pelvic flexion.

You will fit everything in perfectly. I have vision by first intention and the result will be a very prominent stone upon which an artificial eye will be made to rest well. This stone is perfect of itself from the inside of the shell than any other, and there, too, it does not show any less, with the necessary sunken appearance of the eye, under an examination. You are also apt to increase the water content, that is indicated by the color of the eye, and change away with the electric application of the eye.

ON THE PREPARATION OF MACROSCOPICAL EYE SPECIMENS. WILLIAM CAMPBELL POSEY, M.D., Philadelphia (*Annals of Ophthalmology and Otology*, Jan., 1896).

The method of preparing the eye specimens is that of Mr. Treacher Collins, of Moorfields, London, and is practically the same as that which was introduced by Mr. Priestly Smith. The glass jars which I employ have been made for me by the Fox Optical Co., and consist of a simple glass jar which is capped with a plano-convex lens. A small disc of opaque glass is used to seal the jar, and forms an excellent background for the specimen. The whole is mounted on a small block of wood.

The preparation of the eye for mounting is briefly as follows: The entire globe is hardened in Müller's fluid for at least three weeks. It is then placed in a freezing mixture of salt and ice, care being taken to envelop the eye in oiled silk to prevent any of the fluid from the freezing mixture coming in contact with it. After the globe is thoroughly hardened, it is divided by a bold stroke of a knife, that form of knife used in sectioning the brain being the best adapted for this purpose. One-half of the eye is reserved for microscopic examination, while that which is to be mounted macroscopically is placed in water to thaw out and to rid it of the excess of Müller's fluid. To remove the stain caused by the fluid more effectually the section of eye is then placed in a five per cent. solution of chloral hydrate, care being taken to change the solution daily until the section is no longer discolored. As the globe would shrink were it placed in the mounting fluid in this stage, it is first subjected to solutions of glycerin and water of different strengths (one to three for twenty-four hours and then one to two for twenty-four hours, J. E. J.). The eye is then ready for mounting.

The preparation of the medium used for this purpose is the only difficult stage in the entire process. It is quite a painstaking task to obtain a clear solution, and one frequently consumes three or four hours in the process to be rewarded by a product which is too cloudy for use. The solution is best prepared as follows: One ounce (about twelve to fourteen strips) of the best French gelatin (Coignet & Co., Paris) is cut into small bits by a pair of scissors, eight ounces of water are

then added to the gelatin, and the mass set aside in a beaker to swell. The whites of two eggs are then taken, and to better clear the mixture later on, the shells of the eggs are cut into fine pieces and thoroughly mixed with the albumen. The gelatin is now melted with a gentle heat, a few drops of carbolic acid being added as an antiseptic. As soon as it is beginning to boil the albumen is added, and the whole mass stirred with a glass rod. As the mixture is very readily scorched, constant attention must be given it until the fluid is quite clear below and a thick scum has gathered upon the top. The mixture is now filtered through flannel, or preferably through a steam filter, and the product which should be quite clear is collected in a jar which has been made perfectly clean. Eight ounces of glycerine are then added. After the glycerine and jelly have been thoroughly mixed, one of the glass cells is two-thirds filled with the solution, and the section of the eye floated upon it. The globe is then seized at the equator with a pair of forceps and gently rolled over in such a way that no air bubbles are permitted to get into its concavity. Should any bubbles, however, get in, they can be readily removed by sucking them out through a glass tube. A hand-mirror is now placed under the specimen and a good view is obtained of the position of the eye, and of any air bubbles which may have escaped detection from above.

The globe is then kept from rising in the fluid by placing over it a bit of card board, perforated by a pin. The jar should never be entirely filled with the solution, for it is always better to leave an air space between it and the opaque disc which is cemented on after the jelly has thoroughly set.

A CASE OF SYMPATHETIC OPHTHALMIA FROM
IRIDECTOMY. D. L. LEDBETTER, (*Annals of Ophthalmology and Otology*, Vol. IV, No. 4).

The patient, a young girl 17 years of age, had cataract in both eyes. The right eye was needled and after four operations the patient could read ordinary print with glasses. Six months later the left eye was needled and the patient allowed to go home. She was gone a month and when she returned I found there had been an iritis following the operation. There

was complete synechia and occlusion of the pupil. The eye was treated until the inflammatory symptoms had all passed away, and then an effort was made to detach the iris from the capsule of the lens. The pupil, however, would not dilate under mydriatics and the result was negative. When the irritation had subsided I did an iridectomy, hoping to get some relief in this way. The reaction was slight and the patient was allowed to go home. Three months later she returned when I found that my coloboma was obliterated and the pupillary margin drawn up toward the corneal cicatrix. There was considerable ciliary congestion of left, with serous iritis of the right eye. Ophthalmoscopic examination of the right eye was very unsatisfactory on account of the cloudiness of the media. The lower section of the cornea presented a triangular punctate appearance. There was some photophobia and slight sensitiveness to pressure in both eyes. The patient was kept under close observation for five or six weeks, but the eyes continued to show some ciliary irritation; the punctate appearance of the cornea remained and the lymph deposit in the pupil of the right eye was getting more and more dense all the time. It was decided to enucleate the offending eye and after its removal the other cleared up very rapidly, and the punctate appearance of the cornea was soon gone, but the lymph deposit remains and the vision is considerably impaired, the patient counting fingers at a few feet but sees enough to get about comfortably. I hope to be able to improve the vision by a division of the membrane, when the eye has entirely recovered.

DR. D. C. PIPINO, a prominent oculist and aurist of Des Moines, Ia, was thrown from his horse and killed a few days ago. The doctor, whom we had occasion to see only a few months ago at the meeting of the Western Ophthalmological, Otological and Laryngological Society, where he was elected Second Vice-President, had been located in Des Moines for a number of years. By his gentlemanly and refined manner, his practical and scientific attainments and his public spirit, he soon succeeded in gathering a large clientèle. He leaves a wife and two children, who have our deepest sympathy in their sudden and shocking loss.



FIG. 3.



FIG. 2.

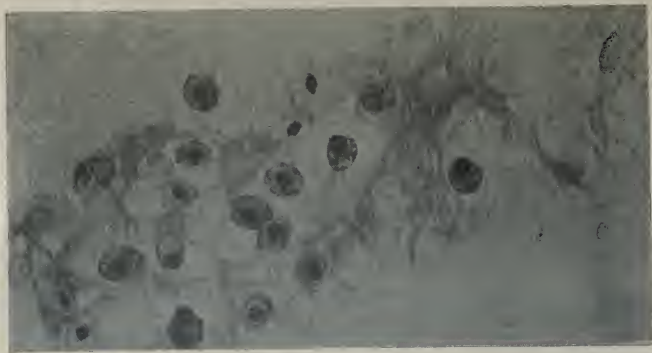


FIG. 1.



FIG. 6.

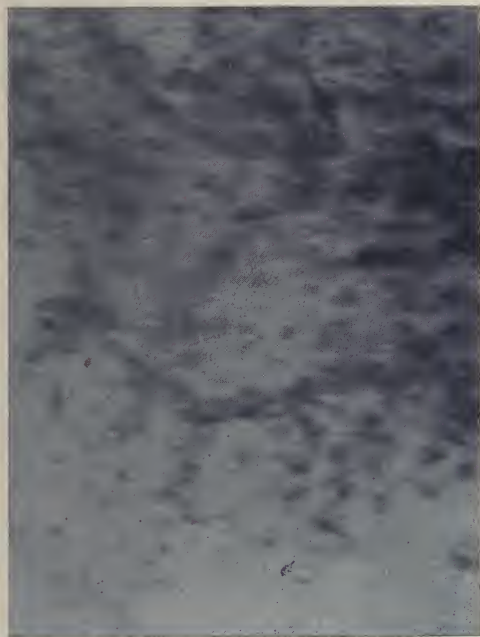


FIG. 5.



FIG. 4.

SOCIETY PROCEEDINGS.

AMERICAN MEDICAL ASSOCIATION.

OPHTHALMOLOGICAL SECTION.

ATLANTA MEETING, MAY 5, 6, 7 AND 8, 1896.

Reported by DR. H. O. REICK, Baltimore.

1.—*Address of the Chairman.* Dr. Lucien Howe, Buffalo.

I feel impelled to ask your attention briefly to a growing tendency among us to regard difficulties of the accommodation and muscular apparatus as entirely local. I would fain say a word for that nearly forgotten factor, the "general health." We look upon the causes of asthenopia as more local than general, because we see such a large proportion of cases which require only local treatment. Many cases exist, however, which in spite of most accurate correction of the refraction and muscular balance still suffer from asthenopia. In these cases the condition of the blood, of nutrition and of the nervous organization have much to do with the trouble and should be carefully looked after.

2.—*The Nomenclature of Conjunctivitis.* D. S. Reynolds, Louisville, Ky.

According to the intensity of the inflammation and the character of the infection, the pathological conditions vary, and it seems more rational to designate the varying types of conjunctivitis according to their pathological characters; for, as these vary there should necessarily be employed varying modes of treatment. I should make two general divisions—traumatisms and infections, and subdivide these into primary and secondary groups and each group into species according to the part of the membrane affected or the character of the infecting organism.

3.—*Sub-Conjunctival Injections.* E. J. Bernstein, Baltimore, Md.

These points are worthy of consideration: First, observance of every practical aseptic precaution; second, thorough anæsthesia of conjunctiva with four per cent. cocaine solution; third, use of cyanide of mercury instead of sublimate; fourth, the injection is to be made *sub-conjunctival*, and *not* under Tenons capsule. The action of drugs injected is intensified and it is a more exact method of dosage.

Discussion:

DR. G. E. DE SCHWEINITZ, Philadelphia.—I have tried the injections and believe they should have a permanent place in ophthalmic therapeutics, but not to the exclusion of constitutional measures. They are very valuable in any variety of iritis provided there is not high inflammatory action. In neuritis and episcleritis they act promptly, but I would suggest that relapse is more likely to occur than where ordinary constitutional measures have been thoroughly employed. I have obtained the same results whether bichloride solution or salt solution was used.

DR. G. C. SAVAGE, Nashville, Tenn.—I have used the bichloride solution but found it too painful. No matter what else may be used in treating iritis, atropia should not be neglected.

DR. C. H. BAKER, Cleveland, Ohio.—I have used the injections in combination with the accepted methods of treatment and had excellent results in a number of cases, especially of interstitial keratitis and central choroiditis.

DR. DUNBAR ROY, Atlanta, Ga.—I have found this method of treatment of service in my hospital work where I have to deal with, mainly, colored people. It is cheaper than dispensing medicine and I am sure the remedy is being used.

DR. BERNSTEIN.—I have had no experience as yet with relapses. Of course, neither atropia nor general treatment are to be left out in iritis.

4.—*A Case of Ectropion of the Upper and Lower Eyelids.* Dr. F. C. Hotz, Chicago.

The patient was a boy of fourteen with complete ectropion of the upper lid of the left eye and both lower lids, the result of caries of the orbital margin when four years old. Operation on the upper lid, only of interest. I made a skin

flap from the cicatricial skin in the vicinity of the upper lid and fastened it with sutures. The wounded surface above was then covered by a flap from the temporal region. The operation supplies the lid with a thin light skin, which adapts itself to the configuration of the lid, and does not restrict its movement. The new lid skin being fixed to the tarsal cartilage makes it independent of tissue contraction.

5.—*Report of a Case of Detached Retina, Occurring in Chronic Bright's Disease.* Dr. L. F. Lane, Philadelphia.

C. D., female, 54 years of age, applied for treatment October, 1892. Had always enjoyed good health. Lately slight headaches and dyspnœa on exertion. Mother of five children; no miscarriage. Menopause at 46. Four years ago her vision failed suddenly in the right eye. About two weeks ago she noticed dimness in the left. Present vision R. E. V.=fingers at ten inches; L. E. V.= $\frac{20}{LXX}$. Ophthalmoscope R. E., fine floating opacities in the vitreous, nerve atrophic, general retinal œdema and detachment above and below. L. E., lens hazy. Disk red-gray. Hæmorrhagic extravasation in macular region and a few white plaques above the disk. Urine, specific gravity 1018, albumen, hyaline casts, pus cells and blood corpuscles. Under care of Dr. J. C. Wilson she improved in respect of headache and restlessness. When seen three years later her condition was about the same at first visit.

6.—*The Field of Fixation and Its Relation to Heterophoria.* Dr. Casey A. Wood, Chicago.

The field of fixation of an eye includes all those points which the eye can successively fix, the head being completely at rest, while the limits of the field represent the extreme excursions of the eyes in all directions. What we desire to know in practice, however, is not the extreme limit of rotation of the eye so much as its limit of observation, whether or not the various muscles alone and in combination are capable of making all the excursions required for the purpose of securing and maintaining single and binocular vision. These considerations led me to attempt to remedy what seemed to be certain defects in the technique of determining the field of monocular fixation. The most effective plan so far employed is the modi-

fied Landolt apparatus attached to the McHardy perimeter. I have found in this method though, that the long continued effort necessary is very fatiguing to the patient, and the results are thus badly influenced. Instead of using an object attached to the carrier on the perimeter arm I have used a simple device whereby the rotation of the globe in any direction can be easily and quickly measured. Four strips of paper with words of two letters printed on them are placed between as well as below the figures representing the degrees of latitude on the perimeter arc. These strips are together placed in position on the arm of the perimeter, the patient's head is placed in the primary position and he is asked to read the lower line as far away from the center as possible. He is then asked to give the figure above the word just recognized and try to read further out other words on the figure line. Each word represents one degree on the scale, and the number of words so read added to the previous figures gives the limit of the field in that direction. As each quadrant of the circle is passed over, the slip is removed, showing a new one of different lettering. I feel justified in thinking that where carefully done the defective excursions, and often the special muscle, or muscles, can be detected by a glance at the perimeter chart.

Discussion:

DR. G. C. SAVAGE, Nashville —In my judgment the paper is one of great interest and importance, and I have not heard a paper for a long time that gave me as much pleasure.

DR. D. S. REYNOLDS, Louisville, Ky.—I appreciate the importance of the subject and the practical character of the paper and think we will all be better prepared to discuss it having studied the paper in cold type.

7.—*Etiological Factors, Other than Myopia in the Production of Retinal Detachment.* Dr. H. O. Reik, Baltimore.

In a study of the fifty per cent., or more, of cases not due to myopia we are compelled to attribute their origin to quite a variety of causes. Among these we may number, in their order of frequency, trauma, Bright's disease, or the albuminuria of pregnancy, hæmorrhages, tumors, diabetes, sunstroke, and neuralgia of the fifth nerve. Despite the greatest care taken, however, in examination, there still remains a large percentage in which no cause for the lesion can be ascertained. Though

the immediate cause of displacement is so obscure, it is probably safe to say that the vitreous is always the seat of pathological alterations, though such changes may not be, and often are not apparent by ophthalmoscopic examination.

8.—*The Anatomic Changes in Two Cases of Retinal Detachment.* Dr. R. L. Randolph, Baltimore, Md.

The chief points about the pathological anatomy of the first case, were: First, the widespread atrophic degeneration of the retinal layers, especially the layer of rods and cones; second, the swelling of Müller's fibres; third, the presence of albuminous drops in various localities, especially the choroid and the retina along the neck of the detachment, and finally the transformation of the vitreous body into fibrillæ. The principal changes in the second case, were, the conversion of the vitreous into fibrillæ and the atrophic degeneration of the anterior layers of the retina. This condition of fibrillary degeneration probably exists to some extent in every case, and is the chief element in the pathogenesis of the disease.

9.—*The Treatment of Retinal Detachment.* Dr. Casey A. Wood, Chicago.

DR. WOOD reviews the various methods proposed from time to time for the treatment of this affection, and describes in particular the recently suggested operation of Deutschmann, incision of the vitreous fibrillæ and injection of sterilized rabbit's vitreous. He then concludes that we have no better device as yet than that resorted to with occasional success by the older ophthalmologists, rest, bandage and diaphoretics. So numerous and well authenticated are the cases of spontaneous recovery reported, I can not help thinking that a large percentage of the results obtained after use of the various methods, are really brought about by local and general rest.

10.—*Electrolysis in the Treatment of Detached Retina.* Dr. W. T. Montgomery, Chicago.

One of the most recent measures brought forth for the treatment of detachment is electrolysis, and a most encouraging report of its use has been made by Dr. Terson. Dr. Bettman and I have recently tried it according to Dr. Terson's

recommendation in four cases, and if we are warranted in drawing conclusions from such a meagre report, they are: (1) that the treatment is exceedingly painful; (2) that it is valueless as a curative agent; (3) that it may be a factor in exciting inflammatory glaucoma as occurred in second case.

Discussion of last four papers:

DR. J. A. WHITE, Richmond.—The Committee is to be congratulated upon the completeness of its work. I quite agree with the authors that we are still in need of good methods of treatment. I have watched some cases from their very beginning and nothing availed to check them.

DR. LYMAN WARE, Chicago.—In regard to the use of electrolysis, is it rational treatment to use the positive pole? The negative is the one that has been supposed to produce absorption.

DR. A. R. BAKER, Cleveland, O.—I wish we could have a more scientific classification of these cases. Simply to call them detachment is not enough, for often the displacement is only an incident in the affection.

DR. G. E. DE SCHWEINITZ, Philadelphia.—I deprecate the report of cases of detachment submitted to operative interference before sufficient time has elapsed to test the sufficiency of the cure. I remember one case reported as cured by another physician and at the time the report was given out the patient was in my hospital for treatment. I would suggest that Deutschmann's result in human beings with injections of sterilized vitreus be repeated in animals.

II.—*Report of One Hundred Cataract Cases.* Dr. Lyman Ware, Chicago.

When there is no disease of the eye aside from cataract and when the patient is reasonably tractable every operation ought to be a success. Dr. Ware reviews some of his cases, reports five per cent. of failures, and says that he favors thorough antisepsis with bichloride of 1-5000, a preliminary iridectomy in most cases and a large corneal section. A tabulated report of the cases goes with the paper.

Discussion:

DR. W. T. MONTGOMERY opposed the use of bichloride because of the irritating properties, and favored preliminary iridectomy only in exceptional cases.

DR. A. C. CORR.—I regard the preliminary iridectomy as so important and necessary to an ideal operation that if I were to have to submit to cataract extraction I should require this method.

DR. J. A. WHITE.—I would indorse all that Dr. Ware has said and believe that if you are working only to secure to the patient every possible chance for vision, it is advisable to do preliminary iridectomy in every case.

DR. H. B. YOUNG, Burlington, Iowa, advocated the simple extraction.

DR. G. C. SAVAGE.—The ideal operation in my judgment has not yet been perfected, that is, the extraction of the lens in its capsule without iridectomy. At present I always start out with the intention of doing simple extraction, and always regret having to perform the combined operation.

12.—*Cases of Optic Nerve Atrophy of Obscure Origin Occurring in General Diseases.* H. V. Würdemann, Milwaukee, Wis.

Optic nerve atrophy occurs in general diseases usually as the direct result of their toxins causing inflammation with the resultant interstitial changes, or, through micro-biotic changes in the bloodvessels affecting the nutrition of the nerve and retina. A certain proportion of cases are due to trauma and to lesions which cause pressure on the nerve, or interfere with its nutrition through embolic processes. I think, in the majority of cases, it is possible to demonstrate a sufficient exciting cause.

13.—*Optic Nerve Atrophy from Toxic Agents.* Dr. G. E. de Schweinitz.

The baneful influence of certain toxic agents falls particularly upon the papillo-macular tract and there results an augmentation of nuclei, and hypertrophy of the connective tissue and a wasting of the nerve fibres, the process being most intense according to Sachs, in one small area which he calls the nuclear group. There is in fact an interstitial sclerosis in every way comparable to the pathologic processes in interstitial hepatitis. Tobacco is *facile princeps* among deleterious agents, but similar amblyopias may be produced by alcohol, stramonium, cannabis Indica, chloroform, opium, bisulphide of carbon, nitro-benzol, etc. Pure cases of toxic amblyopia are

distinct from retro-bulbar or axial neuritis. While the lesion in tobacco amblyopia is assumed to be similar to that found in mixed cases we are not yet in possession of an autopsy to prove it.

- 14.—*Optic Nerve Atrophy of Obscure Spinal Origin.* Dr. G. Dunbar Roy, Atlanta, Ga.

A review of cases reported showing the relation which exists between optic atrophy and such diseases as meningitis, locomotor ataxia, multiple sclerosis, lateral sclerosis, trophoneuroses, chorea and injuries of the spinal cord.

- 15.—*Differential Diagnosis Between Simple Glaucoma and Optic Nerve Atrophy.* Dr. B. Alexander Randall, Philadelphia.

As a rule such a diagnosis, of course, gives no difficulty, but Dr. Randall showed by pictures thrown on a screen that cases do exist in which the most expert ophthalmologist might be puzzled to determine the difference.

Discussion of Optic Atrophy:

DR. C. A. WOOD thought that alcohol was more likely to be the principal cause of toxic amblyopia than was tobacco, because we know how frequently it produces nerve lesions elsewhere in the body while tobacco rarely does so.

DR. G. C. SAVAGE thought that there should be no difficulty in deciding between glaucoma and atrophy in any case.

DRS. BAKER and WOODSON reported cases of tobacco amblyopia. Dr. Baker spoke of sunstroke as a cause of atrophy, and Drs. Hobby and Short related cases due to injury.

- 16.—*Idiopathic Choroiditis.* Dr. Adelaide E. Portman, Washington, D. C.

DR. PORTMAN called attention to a class of cases in which no specific taint could be discovered and to which the above name was applied to remove them from the suspicious class.

- 17.—*Bilateral Exophthalmus.* Dr. H. B. Ellis, Los Angeles, Cal.
A very interesting case, but too long to report here.

- 18.—*A Contribution to the Question of Removal of the Lens in Myopia.* H. H. Harlan, Baltimore, Md.

DR. HARLAN reports the case of a woman, aged 45, with

progressive myopia which caused loss of vision in the left eye. When 13 years old, the right eye was injured, traumatic cataract, the lens was absorbed and the vision in the right eye is now $\frac{20}{L}$ without glasses and there is no fundus trouble apparent. Would an early operation have saved the left eye?

Under discussion, Dr. C. A. Wood reported a case upon which he had operated four years ago with good results.

19.—*Results of an Examination of the Vision of the Children in the Public Schools of Baltimore.* Drs. Harlan and Woods, Baltimore.

The plan pursued in making the examination was practically the same as that devised and published by Dr. F. Allport, of Minneapolis, more than a year ago. Good results are reported and much benefit to the children is expected to be derived in the future.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

EDWARD NETTLESHIP, F.R.C.S., President, in the Chair.

THURSDAY, MAY 7, 1896.

CLINICAL EVENING.

RESTORATION TO NORMAL VISION AFTER SYMPATHETIC OPTHALMITIS.

This case was shown by MR. CRITCHETT. An attempt was made to save an eye which had been injured by a nail; the cornea and lens had been wounded; the attempt failed, and the eye was excised thirty-five days after the accident. Twelve days after the excision of the injured eye the other eye became inflamed, and vision was reduced to < fingers. Under the use of atropine and mercurial inunction the inflammation subsided gradually, and the vision was eventually restored to normal.

EXTRACTION OF A DISLOCATED LENS WITH GOOD RESULT.

This case was also shown by MR. CRITCHETT. Two months before her visit to the hospital a middle-aged woman received a blow on the right eye by which the lens was displaced downwards. The left eye had been injured twenty-three years before; at that time there had also been an attack of inflammation in the right eye. The dislocated lens was removed with a vectis; there was no loss of vitreous, and vision was eventually $\frac{5}{LX}$. The section was within the cornea. The vectis was preferable to the spoon in some cases, as it sank into the lens and held it more securely.

THE PRESIDENT thought Mr. Critchett's second case was another instance of recovery from sympathetic ophthalmia. This added to the interest of the operation that had been performed.

OPTIC NERVE DISEASE IN A MOTHER AND THREE CHILDREN.

These cases were shown by DR. R. D. BATTEN. The mother's sight had failed when she was 12 years old; one of her sisters, aged 33, had the same affection, also one brother. In the mother's case the vision was reduced to $\frac{1}{LX}$; the optic discs were atrophic, there was slight contraction of the visual field. In the younger generation one boy and two girls were affected; their sight had failed at about 12 years, the same age as the failure in the mother's case. In the boy vision was $\frac{6}{XVIII}$, and there was a central scotoma. In the eldest girl there was pallor of discs, several scotomata, and color blindness. In the other girl the signs were less marked. There was no other disease in the family.

SPURIOUS OPTIC NEURITIS.

This case was shown by MR. HOLMES SPICER. The patient was a boy, aged $11\frac{1}{2}$ years, whose refraction in each eye was emmetropic, and whose vision was $\frac{6}{VI}$. His visual fields were normal; his light and color sense were normal. Both optic discs presented the appearance of the early subsidence stage of severe optic neuritis; their edges were quite indistinct; they were very pale; there was swelling amounting to about 3 D. The patient had been under continuous observation for three years, and there had not been the slightest change in the appearance of the optic discs.

MR. HARTRIDGE objected to the term "spurious;" he thought it was a case of persistent optic neuritis, in which the macular fibres had escaped.

DR. R. D. BATTEN was reminded of those cases in which a tilting of the optic disc gave rise to an appearance of neuritis on one side only.

MR. MARCUS GUNN asked if a case of this kind had been seen in which recovery had taken place; he had seen it once in an adult.

MR. SILCOCK had watched a case of this kind lately in which the patient had been thought to have a cerebral tumor; she had been under observation now for a long time, and the appearances were unchanged.

MR. ADAMS FROST did not think the long persistence of the appearances without change excluded optic neuritis.

MR. HOLMES SPICER, in reply, said he regarded the condition in this case as a physiological one, simulating optic neuritis; if it were inflammatory it would be necessary to assume that serious inflammation could last for years without producing any impairment of function in such a delicate structure as the optic nerve.

LYMPHANGIECTASIS OF THE EYELIDS.

DR. D. MOWAT showed a case. A small, soft, ill-defined swelling had first appeared in the lower lid; it increased slowly for some months, then spread to the upper lid. The swelling could be displaced from one lid to the other by pressure; if pressure was made on both lids the swelling appeared behind the ear of the same side; there were communicating channels over the zygoma. The swelling had steadily increased so that it was no longer possible to transfer the fluid from one part to another.

ONE-SIDED PARALYSIS OF SIXTH NERVE ASSOCIATED WITH CONTRACTION OF ORBICULARIS AND RETRACTION OF THE GLOBE ON INWARD ROTATION.

This case was shown by MR. MACLEHOSE. It belonged to a definite group of cases, of which he had seen several which all presented the above signs with some variations. Although he called it paralysis of the sixth nerve, he thought

the condition was congenital, and depended on variations in nerve supply or muscular development.

TRANSPLANTATION OF SKIN TO THE SURFACE OF THE EYEBALL FOR THE CURE OF SYMBLEPHARON.

This case was shown by DR. BELL TAYLOR. A man, aged 40, had symblepharon following a burn by hot slag. The lower lid was firmly adherent to the globe, covering the lower third of the cornea. Repeated attempts to secure separation of the adherent tissues by the usual methods failed. Eventually the lid was dissected off the eyeball, and a piece of skin from the upper eyelid of the uninjured eye was transplanted on the surface of the globe, to which it readily became united.

POSTERIOR LENTAL OPACITY, REMAINS OF HYALOID ARTERY AND COLOBOMA LENTIS.

This case was shown by MR. CARTWRIGHT. The coloboma of the lens was upwards and outwards; the suspensory ligament was attached to the remains of the fibro-vascular sheath.

DETACHMENT OF THE RETINA TREATED BY DRAINAGE.

This case was shown by MR. EVE. A young man showed evidence of choroiditis and vitreous opacities before Christmas; in February the retina became suddenly detached. Treatment by iodide of potassium, pilocarpin, and the recumbent position had no effect. An incision into the sclera was made, a trochar and canula were inserted, the fluid withdrawn, and a horsehair drain placed in the eye. Seven weeks after no detachment could be made out, and the visual field was normal.

CASE OF PROPTOSIS, OPTIC ATROPHY, AND OPHTHALMOPLÉGIA.

This case was shown by MR. MARCUS GUNN. A female, aged 67, suddenly had proptosis of the right eye. The third, fourth, and sixth nerves were paralyzed, the optic nerve was atrophied, the pupil was dilated and inactive, the conjunctiva œdematous. He thought the case was probably one of hæmorrhage from an aneurism of the ophthalmic artery.

MR. EVE had had a case with a similar history, which proved to be a pulsating sarcoma of the back of the orbit.

MISCELLANY.

HONORS TO DR. L. HOWE.

The French Congress of Ophthalmology held its final meeting yesterday, the President being Dr. Lucien Howe, of Buffalo, N. Y. It has so long been laid to the charge of French physicians that they were inclined to jealousy of their foreign confrères that the choice of an American to occupy the chair at the last session of the Congress must be regarded not only as an effectual disproof of this accusation but also as a mark of hospitality and courtesy to the United States.

Dr. Howe accepted the honor in that spirit, declaring that he looked upon it rather as an honor to his nation than to himself.

One of the most commendable things that have occupied the attention of the Congress was the question of the precautions to be taken to prevent ophthalmia of the new-born children by legislative action. Dr. Howe, who brought forward the question, stated that in America laws have been passed in several states to punish midwives by imprisonment and fine if they do not give prompt notice to the medical authorities of the occurrence of this disease in new-born children, which is well known to be the most important of the causes of blindness.

French oculists do not think that it would be possible in this country to pass such laws, although they have no doubt that one or two punishments of offending midwives would do a world of good.

Before the Congress closed a committee was appointed to consider the question.

The foreign oculists at the Congress included Dr. Bull.--*N. Y. Herald*, Paris.

COLOR-BLINDNESS AND ATAVISM.

A recent writer, M. Dubois, throws out a suggestion that will probably be new to most of our readers. It is recognized

by astronomers that there are three classes of stars—first, the bluish-white stars, of which Sirius and Regulus are examples. More than half of all known stars belong to this class. In these stars combustion is at its maximum, and their atmosphere consists of superheated hydrogen and certain metallic vapors. The second class, of yellow stars, has for typical representatives Capella and our own sun. They are less hot than the first class, and the hydrogen lines in their spectrum are not so conspicuous as in the case of the white stars. This class contains about 33.5 per cent. of all known stars. The third class are the red stars, and of these Betelgeux is the representative. They are in a later stage of cooling than the second class, and the violet rays are deficient. This class includes about eight per cent of known stars. From these known facts it is conjectured that color-blindness (or insusceptibility to the red rays of light) may possibly be a case of atavism—a “negative inheritance from that time long ago when the eye of our ancestors was not yet sensitive to red rays, which were almost entirely wanting in the white stage of the sun.” This is a startling theory, but it suggests a plausible explanation of what is such a mysterious fact—viz., that color-blindness should so uniformly take the form of insusceptibility to the red rays. Atavism is without doubt a principle of wide application, and may be fairly relied upon to explain many apparently inexplicable facts. We will not venture to pronounce upon the correctness of its application in the present instance, but at least the theory is a bold and ingenious one, and, if accepted, would tend toward that unifying of knowledge which is the aim of science. Color-blindness, regarded as an isolated phenomenon, is mysterious, but if it be a case of atavism if takes its place in the scheme of ordered knowledge.—*The Lancet.*

THE CRYPTOSCOPE.

Our special correspondent in Rome writes: At a meeting of the Perugia Medico-Chirurgical Society held on February 5, Professor Salvioni, teacher of Physics at the University, made a most important communication on the new results obtained by him in Roentgen's rays. In studying the question,

his aim 'was to invent an apparatus which would enable one to see direct and without the intervention of photography certain bodies enclosed in wood, flesh, cardboard, etc. He, therefore, studied the possibility of rendering the retina sensitive to Roentgen's rays. In this he has succeeded by inventing an apparatus which he has called a cryptoscope, which he exhibited at the meeting, and by means of which one can clearly see the contours of the bones of one's own hand, objects enclosed in cardboard boxes, leather purses, etc. This apparatus is very simple, and consists of a black cardboard tube enclosed at one end with a disc of black cardboard coated internally with a fluorescent substance (barium platino-cyanide, sulphate of calcium, etc.); in the other end is placed a lens which permits one to clearly see the fluorescent surface. The object to be observed is placed before the luminous source given by a Crookes' tube, and then one looks at it through the cryptoscope placed at a suitable distance. As in the fluorescent cardboard the parts of the object impermeable to Roentgen's rays are drawn in shadow, thus one clearly sees the contours of the bones of the hand, etc. A model of the instrument was made under the direction of Professor Blasema at the Physical Cabinet of the Roman University on February 11, and with it one could clearly see the bones of one's own hand, coins in a purse or the clenched hand, etc. It is evident from these results that the apparatus, when perfected, will be of great use in medicine and surgery.—*British Medical Journal*.

PROFESSOR EXTRAORDINARIUS OF OPHTHALMOLOGY, O. SCHIRMER, at Greifswald, Germany, was given the title of Ordinarius.

THE THIRTY-SECOND ANNUAL MEETING of the American Ophthalmological Society will be held this year on Wednesday and Thursday, July 15 and 16, at the Pequot House, New London, Conn.

"Journal of Eye, Ear and Throat Diseases. Quarterly. Published by the Surgical Staff of the Presbyterian Eye, Ear and Throat Charity Hospital, Baltimore, Md. Edited by F. M. Chisolm, M.D., and J. R. Winslow, M.D. We have received the first number of this journal and wish it success.

BOOKS AND PAMPHLETS.

NOUVEAUX ÉLÉMENTS D'OPHTALMOLOGIE (NEW ELEMENTS OF OPHTHALMOLOGY). By DRS. TRUC and E. VALUDE. First Volume with 149 Figures and Color-Plates. Paris: A. Maloine. Price, 20 francs.

A neatly gotten up volume. The new in it is chiefly the arrangement of the text-matter, by which the authors hope to aid greatly in the teaching of ophthalmology. It contains a so-called history of ophthalmology and a chapter on microscopical examination of the eye and on its bacteriology.

The second volume is promised for June.

PAMPHLETS.

"The Pathfinders." By J. T. Jelks, M.D.

"Ophthalmia Neonatorum." By W. Cheatham, M.D.

"The Relation of the Thyroid Gland to Certain Diseases of the Ear, with a Theory of Its Function. By E. D. Spear, M.D.

"Cases illustrative of different forms of color-blindness." (1) Congenital; (2) Tobacco; (3) Traumatic. By W. Thomson, M.D.

"Merck's 1896 Index—An Encyclopedia for the Physician and the Pharmacist." New York: Merck & Co. Second Edition. Price, \$3.00.

PAN-AMERICAN MEDICAL CONGRESS.—Professor Dr. Don Francisco Bastillos, Calle de Tacuba No. 7, Ciudad de Mexico D. F. Republica Mexicana, has been elected Treasurer of the Second Pan-American Medical Congress to be held in the city of Mexico beginning the 16th of November. All members residing in the United States and Canada, and others who contemplate attending, should forward the registration fee, \$5.00, gold, to him at once, and notify Dr. C. A. L. Reed, of Cincinnati, Ohio.

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ORIGINAL ARTICLES.

TWO YEARS IN A SOUTHERN EYE CLINIC; WITH
ESPECIAL REFERENCE TO DISEASES OF
THE EYE IN THE NEGRO; FOUR
THOUSAND ONE HUNDRED AND
SIXTY CASES ARRANGED IN
STATISTICAL TABLES.¹

BY HENRY DICKSON BRUNS, M.D.,

PROFESSOR OF DISEASES OF THE EYE IN THE NEW ORLEANS POLYCLINIC;
SURGEON IN CHARGE OF THE EYE DEPARTMENT OF THE EYE, EAR,
NOSE AND THROAT HOSPITAL; LATE PATHOLOGIST TO
THE CHARITY HOSPITAL, NEW ORLEANS, LA.

I desire to present for your consideration a set of tables² which display in compact form the result of two years' work in diseases of the eye in my clinic at the Eye, Ear, Nose and Throat Hospital of this city. A careful record of four thousand odd cases, a compilation of these records, and their analysis in tabular form must needs afford many items for information and food for much reflection. Indeed, the points of interest are so numerous, that I would not dare to exploit them, at too

¹Read before the Louisiana State Medical Society at the meeting held in May, 1895.

²On account of the elaborateness of the statistical tables accompanying this article we are forced to continue them in succeeding issues of the Journal.—Ed.

great a length for fear of consuming too much of your valuable time, and becoming tedious rather than entertaining or instructive. I shall call your special attention therefore, only to what these tables can teach us as to the predisposing cause of various eye diseases determined by age, sex and, above all, by race, leaving each individual to satisfy any curiosity he may have on other subjects by browsing through the multitudinous figures.

For such statistical studies it is of prime importance to establish in the first place the fixed or normal percentage for the group of cases considered of in each item of special study.

I have endeavored, therefore, to determine with the greatest care the average of age of all patients attending my clinic, and also the percentage of the sexes and of the white and black (including all of the African blood) races among them. The average age can only be approximately determined for our whole attendance.

From the figures of the Secretary of the Hospital I am able to state that for four years past of 19,710 patients who attended our clinics 14,196 or 72+ % were adults (over 21 years of age); 3,674 or 18+ % were children up to 10 and 1,840 or almost 1 % were children from 11 to 15 years of age. Where the average age, therefore, of a group of cases exhibiting a particular disease falls below 21, and particularly where it is found to be between 11 and 15 it should deserve especial attention as showing in marked degree a particular liability in persons of that age to the disease in question. For example, when we find the average age of a goodly number of cases of chalazion (mean of upper and lower lids) to be 24 years, of styne to be 22 years, of interstitial keratitis to be 17 years, of phlyctenular ophthalmia (mean of whites and blacks) to be 15 years, and of blepharitis marginalis to be 14 years, we can be absolutely certain that these are diseases of adolescence. For the 4,160 cases tabulated we can arrive at a more positive normal by adding together all the average ages and taking their mean; this mean we find to be almost exactly 30 years. This figure signifies to my mind that the vast majority of our patients are neither young nor old but of average age, in full adult life, and when we find that the average age of all our cases of non-traumatic iritis is about the same, I construe it to mean that iritis has no predilection for any particular age, but

is common throughout all functional life, its limits being pretty definitely fixed by the extremes recorded, 13 to 71 years. On the other hand, the determination of this mean makes more certain the conclusion that the diseases above mentioned are those of youth and are peculiar to that condition.

The normal percentage of the sexes, among those in attendance in my clinic can be quite definitely fixed during the four years since the foundation of the institution, of the 19,710 patients who have visited its clinics 9,785 were males and 9,925 were females; the latter forming, in other words, a trifle over 50% of the total attendance. Of the 4,160 cases here tabulated more than 47% were females, and in the face of these figures I think it fair to say that the patients attending my clinic are almost equally divided as to sex. The tables show that this normal percentage, etc., of the sexes is almost maintained in diseases and injuries of the lids and lachrymal apparatus 51+%; of the conjunctiva 50+%; of the lens 43+% and of the extrinsic muscles of the eyeball 47+%. In diseases and injuries of the lids and lachrymal apparatus a glance suffices to show that the slight excess of females is due to the greater frequency (a well established fact) in that sex of dacryocystitis, while the figures for males are kept up by the slight excess of traumata, this latter fact also accounts for the moderate excess of males among patients with diseases and injuries of the lens.

On the other hand, the percentage of females falls decidedly below the normal rate in patients with diseases and injuries of the cornea and sclera, (33+%); iris and ciliary body, (32+%) and choroid (34+%). Here again traumatism is responsible for the greater number of males among the corneal cases, the number of males suffering from abrasions, burns, ulcers and foreign bodies on the cornea being largely in excess of the females.

For diseases of the iris, ciliary body and choroid syphilis undoubtedly plays the chief rôle and determines the great prevalence of these diseases among the male sex for it must be conceded as a general rule, all classes of the population being considered, that a greater number of uninfected males go to one contaminated female than of uninfected females to one contaminated male.

As nearly all the affections classified under diseases and

injuries of the whole eye, are traceable to violent traumatism, it is not surprising to find males constituting more than 70% of the whole number of cases (females, 28+ %); while in the other class of cases in which the percentage of females falls the very lowest (25 %), I can for the present (the number of cases being small, 140) express only the tentative opinion, that tobacco, alcohol and syphilis play prominent parts in the causation of the various forms of neuritis, atrophies and toxic amblyopias which determine the excess of males. In two classes of cases only does the percentage of females surpass the normal rate, but in these two instances the excess is broad and unmistakable. We are as yet too ill-informed as to the etiology and pathology of glaucoma for me to hazard an opinion as to why the female sex should be more liable (67+ %) to this disease than the male, but in case of refractive errors the explanation is clear; it is the nature of the employment, that determines the origin of some of these deformities, and as to others whether they shall remain innocuous or become sources of annoyance or incapacity. A record of the table of employments of those suffering from errors of refraction (503) shows that out of 51 various employments, three or less than 6% furnished 327, or more than 65 % of all our refraction cases. These employments were: Housework (135), which among the wives of our laboring men means much, sewing both by hand and with the machine and usually by inferior artificial light, a lamp or candle; the seamstress handicraft (69), largely followed under similar conditions, and school work including boys, girls and teachers (123), all sedentary occupations, requiring much close application of the eyes.

It is to be observed that among the class who seek relief in clinics the females are for the most part those who live indoors and do much close work; in our offices the males compose the confined and close-working class and the females the leisure class, but the lesson taught by the school work that the conditions being equal the more delicate sex is the more injured, is not to be overlooked; the number of school girls (78) with refractive trouble are more than three times the number of school boys (24). On the other hand, the number of men engaged in common labors, out-of-door employments, in which the eyes are but little used for near work, was only 20, or not quite 4 %, although laborers form more than 11 %

of all the patients 19,710 who have visited us for any and every cause during the past four years. These figures are of no little comfort in one respect to the oculist. The opprobrium of the specialist is the everlasting gossip that asserts that "Dr. So and So puts all of his patients into glasses," or, "it is no use to consult Dr. So and So, he will only give you spectacles." The reason is obvious. The class which consults an oculist in his office runs to the family physician or the specialist upon the first symptoms of anything being wrong with the eyes, and so rarely is the victim of any serious disease; it is too the very class that depends almost entirely upon the near use of the eye for both work and amusement; it is becoming day by day as civilization advances more liable to refractive defects and their incident discomforts while *pari passu* the oculist by the process of his beautiful art becomes more skillful in recognizing these defects and their consequences and in relieving them by the proper application of lenses. The total number (766) of cases of error of refraction and affections of the extrinsic muscles forms but 18.4% of the whole 4,160 cases recorded in these tables, while 81.6% were cases of diseases of the eye. Were I considering my office practice the figures would be about reversed; from 75% to 80% would be cases of refractive or muscular error, or slight ailment, requiring but a word or two of good advice, while from 20% to 25% would be cases of more or less serious disease.

Turning now to the still more interesting question of race as a predisposing cause of disease, we must again seek first to establish the normal percentage of those of negro blood among the patients attending my clinic. This is very readily and very exactly done. Of the 4,160 cases in the tables, 1,113 were of African descent, a percentage of 26.75; of the grand total of patients, 19,710, who visited the hospital from December 5, 1889, to December 31, 1893, 14,580 were white, and 5,330 colored, a percentage of 27.04, which may be taken as the fixed or normal percentage rate.

It is probable that no clinic in the world presents advantages superior to those of the Eye, Ear, Nose and Throat Hospital for observing diseases of the eye as they present themselves in the negro race or those of negro blood, and for comparing the frequency with which this or that disease, or

this or that portion of the eye is attacked in the white or negro races.

The normal percentage rate (27.04) seems to be maintained in diseases and injuries of the lids and lachrymal apparatus, (27+ %); of the conjunctiva, (28+ %); of the cornea and sclera, (29+ %); of the lens, (27+ %) and of the optic nerve and retina, (24+ %). It would be unsafe, at any rate, to base any conclusions upon such slight variations in percentage unless a vastly larger number of cases could be had for calculation. The normal rate is very markedly exceeded in glaucoma, (37+ %); in diseases and injuries of the whole globe, (37 %) and in diseases and injuries of the iris and ciliary body, (55+ %).

Again, as to glaucoma, I have no conjecture to hazard; the explanation of the excess of negroes among cases of disease and injury of the whole eyeball is not far to seek; the reckless, exposed and dissipated lives they lead in a great city render them especially liable to these severe injuries (5 out of the 27 negro cases), while their improvidence and neglect of their own and oneanother's diseases makes common among them phthisis bulbi, panophthalmitis and sympathetic ophthalmia, (17 out of the 27 cases, 34 % of all such cases, white or black). The very high percentage rate of cyclitic and iritic troubles among them is due to the extreme liability of the race of iritis; of the 134 cases of disease of these tissues in negroes, 116 are cases of non-traumatic cyclitis, iritis, or their sequelæ; 45+ % of all such cases in both races and 38+ % of all cyclitic or iritic diseases or injuries; indeed, the 74 cases of non-traumatic acute iritis in this race alone, from 24+ % of the total cases of cyclitic and iritic disease, while the same cases (100) in the whites form but 33+ % of the total, 299 cases. Although, as we have seen, the whites outnumber the blacks in this clinic by almost 3 to 1. The saturation of the race with syphilis, the efficient cause of iritis, is the all-sufficient explanation of these facts. On the other hand, the percentage of blacks falls very low in diseases of the choroid, (16+ %); and cases of refractive iritis, (15 %); and anomilies of the extrinsic eye-muscles, (14+ %). That this should be true of choroidal disease is a surprise, and until I can gather together larger figures, I have no explanation to suggest; but as to refractive and muscular affections, this, as I have said else-

where³ is in consonance with all that experience and statistics have taught us. These defects are among the taxes laid by advancing civilization; the more sedentary, cerebral and ocular become the conditions of existence, the greater the advance in ophthalmic science, the larger grows the army of spectacle wearers. On the contrary, mechanics, laborers, woodmen, cowboys and savages have, as their lives keep them more and more in the open, as their eyes are less "blinded" by "pouring over miserable books," less and less need of eye-glasses. Of the 71 negroes with refractive defects recorded in the tables only 6 (6 out of a total 1,113 negro eye cases!) are set down as near-sighted, while only 9 have complicated eye defects (H. H. as. 8 and M. M. as. 1). As, however, they advance in civilization they will be called upon to bear its physical as well as its other burdens. In the clinics and on the streets of New York, Boston and Philadelphia near-sighted negroes are not infrequently seen. It is to be observed that but 5 cases of strabismus in colored persons are recorded, in the affections of extrinsic muscles table, while this and other musculo-refractive anomalies are noted 90 times among the 128 white (70+%). Eleven of those 21 negro cases are paralytic affections most often due to syphilis. I can not recollect having seen a really dark negro with strabismus save as the result of old disease or injury of one eye. Thus the lesson learned in considering these defects of vision in relation to sex is here repeated and emphasised.

Pushing now our investigations more into detail, we find that chalazion is almost the only lid disease to which the negro is subject; of the 127 negro cases in the table of lid and lachrymal disease, 68 are cases of chalazion, 53+%; while the malady forms but 21+% of all the white cases. The black negro rarely has blepharitis, the mulatto not infrequently, this malady forming but 11+% of the diseases of the lid in the negro against 30+% in the white. Catarrhal conjunctivitis forms 32+% of conjunctival diseases in the whites and only 18+% in the negro; phlyctenular ophthalmia forms 40% of all negro and only 17% of all white cases; pterygium forms 8% of all negro, and only 5+% of all white cases. The rarity of

³Fourth Annual Report of the Eye, Ear, Nose and Throat Hospital, 1893, page 50.

DISEASES OF LIDS AND LACHRYMAL APPARATUS. — 463 CASES.

| DIAGNOSIS. | RACE: | | SEX: | | AGE. | | | VISION: | | TREATMENT. | DURATION OF TREATMENT. | CONDITION ON DISCHARGE. | REMARKS. |
|---------------------------|-------|----|------|----|----------|----|------|---------|--------|---|--|---|----------|
| | W. | N. | M. | F. | from | to | avg. | from | to | | | | |
| Abscess of lachrymal sac. | 4 | 6 | 5 | 5 | 6 | 69 | 33 | 20/20 | 10/200 | Poulticing, lancing and washing abscesses; Bowman's operation and probes | One case completed treatment in 3 mos.; others left after a few days | Cured, 1 case | |
| Abscess of lid | 6 | 5 | 6 | 5 | 3 | 50 | 29 | 20/15 | 20/40 | Poulticing and lancing; one small one underwent resolution under hot poulticing and bathing | One healed in 2 days; and one in 49 days; one was resolved in 40 days; others never returned | Cured, 2 cases | |
| Blepharitis, marginal | 101 | 15 | 54 | 62 | 1 | 68 | 14 | | | Yellow ox. mercury salve | Average 27 days | Cured, 16 cases in '94, in '93 exact number not known | |
| Burn of lid | 10 | 1 | 8 | 3 | 3 | 17 | 8 | 20/15 | 20/60 | Dressed and dischrg'd | One severe case of burn from cigarette treated | | |
| Chalazion of upper lid | 40 | 45 | 38 | 47 | 3 months | 69 | 27 | 20/15 | 20/100 | Removal through skin | Spontaneous disappearance by day appointed for operat'n | One case cured, 1 case not known | |
| | | | | | | | | | | Disappearance under hot applications | One case | | |
| | | | | | | | | | | Suppuration under hot application; incision | One case | | |
| | | | | | | | | | | Incision and curetting; return in 4 days; removal through skin | One case | | |
| | | | | | | | | | | Electrolysis; 6 cases | 1 case 22; | | |

| Chalazion of lower lid | 33 | 24 | 28 | 29 | 1 | 60 | 21 | $\frac{20}{15}$ | $\frac{20}{50}$ | Incision through conjunctiva and cutting | Average in 22 cases 6 days | Cured, 22 cases |
|--|----|----|----|----|----------|----|----|-----------------|------------------|---|----------------------------|------------------------------|
| Dacryo-cystitis | 30 | 2 | 7 | 25 | 2 | 76 | 37 | $\frac{20}{20}$ | $\frac{20}{200}$ | Suppuration under poulitice | One case 2 days | Cured, 1 case |
| Displaced puncta | 4 | 1 | 3 | 2 | 22 | 70 | 54 | $\frac{20}{20}$ | $\frac{20}{50}$ | Electrolysis, 3 cases | One case 7 days | Cured, 1 case |
| Echymosis (traumatic) | 1 | 2 | 2 | 1 | 16 | 27 | 21 | $\frac{20}{20}$ | $\frac{20}{40}$ | Bowman's operation and probes | Average 90 days in 7 cases | Cured, 7 cases |
| Ectropion | 3 | 1 | 3 | 1 | 2 months | 72 | 50 | $\frac{20}{20}$ | $\frac{20}{40}$ | No further record | | |
| Ezema | 5 | 1 | 4 | 2 | 4 | 29 | 10 | $\frac{20}{20}$ | $\frac{20}{40}$ | No treatment | Sent to dermatologist | |
| Empyema (traumatic) | 1 | | 1 | | | 25 | | $\frac{20}{20}$ | | No further record | | Struck on nose while boxing. |
| Entropion | 1 | | | 1 | | 55 | | $\frac{20}{15}$ | | Declined operation | | |
| Epicanthus (traumatic) | 1 | | 1 | | | 19 | | $\frac{20}{15}$ | | No further record | | |
| Epithelioma | 3 | 2 | 2 | 3 | 24 | 60 | 42 | $\frac{20}{20}$ | $\frac{20}{30}$ | No further record | | |
| Fistula of frontal sinus through upper lid | | 1 | 1 | | | 55 | | $\frac{20}{30}$ | | No further record | | |
| Fistula of lachrymal sac | 2 | | 1 | 1 | 5 | 48 | | $\frac{20}{30}$ | | Refused treatment | | |
| Granuloma (growing from abscess cavity) | 1 | | | 1 | | 4 | | | | Excised, cavity curetted, dressed | Eleven days | Cured |
| Mucocœle of lachrymal sac | 2 | | 1 | 1 | 17 | 24 | | $\frac{20}{20}$ | | Bowman's operation and probes | One case about 2 months | Cured, 1 case |
| Nævus of upper lid (small) | 1 | | 1 | | | 25 | | $\frac{20}{20}$ | | Cut away and curetted; returned in five weeks; electrolysis; ran away | | Stationary |
| Occlus'n of palpebral fissure (burn) | | 1 | 1 | | | 11 | | 0 | | Incision | Eighteen days | Unimproved; globe atrophic |

Treated a month; remained away 5 mos.; then again treated 1 month.

DISEASES OF LIDS AND LACHRYMAL APPARATUS.—CONTINUED.

| DIAGNOSIS. | RACE: | | SEX: | | AGE, | | VISION: | | TREATMENT. | DURATION OF TREATMENT. | CONDITION ON DISCHARGE. | REMARKS. |
|---|-------|----|------|----|------|----|---------|-----------------|------------------|---|--|----------------------|
| | W. | N. | M. | F. | from | to | avg. | from | to | | | |
| Occlusion of puncta | 2 | | 1 | 1 | 10 | 57 | | $\frac{20}{20}$ | $\frac{20}{200}$ | | | |
| Œdema of lid (cause unknown) | 10 | 5 | 10 | 5 | 1 | 60 | 24 | $\frac{20}{16}$ | $\frac{20}{70}$ | No further record | | |
| Œdema of lid (dental irritation) | 1 | | 1 | | | 32 | | $\frac{20}{15}$ | | To cases lead and opium compress; 1 case cold compress and borax wash | Cured, 3 cases; 12 cases no further record | |
| Œdema of lid (malarial) | 2 | 1 | 3 | | 24 | 45 | 32 | $\frac{20}{20}$ | | Sent to dentist | | |
| Œdema of lid (sarcoma) | 1 | | 1 | | | 33 | | O | | Quinine | Cured, 3 cases | Two cases monocular. |
| Œdema of lid (traumatic) | 1 | 1 | 2 | | 5 | 17 | | $\frac{20}{15}$ | | Potass iod. | Sarcoma of malar bone recognized | |
| Papilloma of lid | 2 | | 1 | 1 | 18 | 40 | | $\frac{20}{20}$ | | Hot applications | Cured, 1 case | |
| Pediculi tarsi | 2 | | 2 | | 12 | 12 | | $\frac{20}{20}$ | $\frac{20}{50}$ | One excision; one de-clined operation | Cured, 1 case | |
| Scar, recent (characteristically imper- | 1 | | 1 | | | 30 | | | | Yellow ox. mercury salve | Cured | |
| fectly removed) | | | | | | | | | | Incision and curetting | No further record | |
| Sebacaceous cyst. ext. orbital an- | 2 | 1 | | 3 | 12 | 16 | 14 | $\frac{20}{15}$ | | Excision | Cured | |
| gl. | | | | | | | | | | | | |
| Sebacaceous cyst of lower lid | 2 | 1 | 2 | 1 | 9 | 56 | 34 | $\frac{20}{15}$ | $\frac{20}{20}$ | Excision and curetting | Cured, 2 cases | |
| Sebacaceous cyst of upper lid | 2 | | | 2 | 23 | 44 | | $\frac{20}{20}$ | $\frac{20}{50}$ | Never returned for treatment | | |
| Skin teat of lid | 1 | | 1 | | | 13 | | $\frac{20}{20}$ | | Sipped off | Cured | |

| | | | | | | | | | | | |
|-------------------------|-----|-----|-----|-----|----|----|----|------------------------------------|------------------------------------|---|---------------|
| Stricture of nasal duct | 6 | 2 | 3 | 5 | 11 | 53 | 29 | ^{20/30} _{20/30} | Bowman's operation and probe No. 5 | One case 20 days | Cured, 1 case |
| Stye | 34 | 9 | 19 | 24 | 1 | 63 | 22 | ^{20/15} _{20/100} | Hot applications and incision | From 1 to 11 days | Cured |
| Trichiasis | 5 | 1 | 3 | 3 | 36 | 76 | 61 | ^{20/40} _{l.p.} | No further record | | |
| Ulcer | 3 | 1 | 2 | 1 | 23 | 72 | 21 | ^{20/50} _{20/20} | No further record | | |
| Wounds | 9 | 1 | 8 | 2 | 8 | 56 | 21 | ^{20/40} _{20/20} | Antiseptic dressing | One case 4, and 1 5 days; others never returned | Cured |
| Totals | 335 | 129 | 226 | 238 | | | | | | | |

Percentage of Females, 51 + %. Percentage of Negroes, 27 + %.
 Chalazion in Negroes = 53 + %, in Whites 21 + % of all Lachrymal and Lid Diseases.

DISEASES OF THE CONJUNCTIVA. — 1290 CASES.

| DIAGNOSIS. | RACE: | | SEX: | | AGE: | | VISION: | | TREATMENT. | DURATION OF TREATMENT. | CONDITION ON DISCHARGE. | REMARKS. |
|---|-------|----|------|----|------|----|---------|-----------------------------------|--|---|-------------------------|---|
| | W. | N. | M. | F. | from | to | avg. | from to | | | | |
| Abscess of caruncle | | 1 | | 1 | | | | | Incision and hot bathing | Three days | Cured | |
| Burn (with lime) | 23 | 3 | 23 | 3 | 4 | 25 | 26 | ^{20/15} _{l.p.} | Hot or cold applications, borax wash, atropine, cocaine and castor oil | One fire cracker case 4 days; 2 lime cases 15 and 18 days; lightning case 24 days | Cured, 26 cases | Lightning stroke 24 hours before admission; unconscious 10 mins.; eyes red and painful with photophobia; had some conjunctivitis before shock; catarrhal conjunctivitis after burn cured. |
| 2, toy torpedo | | | | | | | | | | | | |
| 2, roman candle | | | | | | | | | | | | |
| 1, powder 3, lye | | | | | | | | | | | | |
| 1, HCl 1, hot grease 1, hot iron 1, carbolic acid 1, ammonia 2, by lightning-stroke 1 | | | | | | | | | | | | |
| Chemosis | 3 | | 2 | 1 | 26 | 43 | 36 | ^{20/15} _{20/40} | Hot applications; borax wash | No further record | | |

DISEASES OF CONJUNCTIVA. — CONTINUED

| DIAGNOSIS. | RACE: | | SEX: | | AGE: | | | VISION: | | TREATMENT. | DURATION OF TREATMENT. | CONDITION ON DISCHARGE. | REMARKS. |
|--|-------|-----|------|-----|---------------------------|------|------|---------|--------|---|--|--|---|
| | W. | N. | M. | F. | from | to | avg. | from | to | | | | |
| Conjunctivitis, catarrhal | 297 | 68 | 174 | 191 | 2 months | 79 | 26 | 20/10 | 20/200 | Argt. nit. grains ss to v (usually), seldom to gr. x, and hot borax wash at home Borax, camph. aq. and hydriastis wash | Fr. m 2 to 81 days; in 73 cases average 21 days | | |
| Conjunctivitis, catarrhal, with bleph. margin. | 15 | 3 | 5 | 13 | 3 | 50 | 20 | 20/15 | 20/100 | Argt. nit. and yellow ox. mercury salve | Three cases; 7, 11 and 3 days Two cases; 10 and 27 days | Cured, 78 cases | |
| Conjunctivitis, catarrhal, with corneal ulcers | 6 | 5 | 6 | 5 | 2 | 68 | 30 | 20/30 | 15/200 | Argt. nit., gel. ox. mercury salve, and hot bathing | Three cases; 5, 17 and 210 days. | Cured, 2 cases; long case worse | |
| Conjunctivitis, diphtheritic | 2 | | 1 | 1 | 15 mths | 19 m | | | | Argt. nit. and hydrogen peroxide wash | One case; 18, and one 20 days | Cured, 2 cases | One case confirmed by bacteriological examination. 1 case in June and 1 case in August. |
| Conjunctivitis, phlyctenular; with and without pustules and ulcers of the cornea | 162 | 145 | 108 | 199 | whites 1 negr's 18 mos | 56 | 13 | 20/10 | 10/100 | { Calomel insufflated Yellow ox. of mercury salve | In 37 cases average 27 days In 34 cases average 26 days | Cured, 71 cases; others ran off; treatment was completed | Under various treatments 56 purely conjunctival cases were cured in 28 days, while 22 cases with corneal complications were cured in 48 days; under various treatments 43 whites were cured in 28 days and 25 negroes in 31 days. |

| | 23 | 7 | 23 | 7 | 1 | 45 | 18 | ²⁰ / ₂₀ | l.p. | Argt. nit. gr. v to x and listerine wash | In 5 cases from 11 to 56 days; average 30 days | Cured, 5 cases | Fifty per cent. at least low Italians. |
|------------------------------------|-----|----|----|----|--------|---------|----|-------------------------------|-------------------------------|--|--|---------------------|--|
| Conjunctivitis, purulent. | | | | | | | | | | | | | |
| Conjunctivitis purulent of newborn | 38 | 10 | 26 | 22 | 1 week | 16 wks. | 4 | | | Argt. nit. gr. v to x and listerine wash (cleanliness) | In 24 cases from 7 to 67 days, average 25 days | Cured, 24 cases | |
| Conjunctivitis, trachomatous | 84 | 8 | 52 | 40 | 5 | 74 | 27 | ²⁰ / ₂₀ | l.p. | Argt. nit. gr. v daily in 1 acute case in negro | Ten days | Only this one cured | |
| Conjunctivitis, vernal | | 3 | 2 | 1 | 4 | 14 | | ²⁰ / ₁₅ | | Yellow ox. mercury salve at home | No further record | | |
| Cyst | 3 | | 2 | 1 | 1 | 21 | | ²⁰ / ₂₀ | | Incision under cocaine | In one case 1, in one 2, and in one 14 days | Cured, 3 cases | |
| Ecchymosis | 35 | 11 | 27 | 19 | 1 | 64 | 24 | ²⁰ / ₁₈ | | No treatment | Two cases observed, blood was gone in 10 days | | Traumatic 11, from coughing 5, vomiting 1, unknown 29 cases. |
| Foreign body, embedded | 2 | | 2 | | 18 | 22 | | ²⁰ / ₂₀ | | Removal under cocaine | One 3 and one 1 day | Cured, 2 cases | |
| Foreign body, encysted | 1 | | | 1 | | 8 | | ²⁰ / ₃₀ | | Removal under cocaine | Eight days; vision then $\frac{20}{20}$ | Cured | Had been 2 years in R. E. |
| Foreign body under upper lid | 39 | 9 | 32 | 16 | 1 | 65 | 27 | | | Removal under cocaine | Longest case was healed in ten days | Cured | Body in eye 3 weeks in 1 case. |
| Granuloma | 5 | 1 | 1 | 5 | 2 | 45 | 21 | ²⁰ / ₂₀ | | Removal under cocaine | In most cases prescribed wash and discharged; those observed from 4 to 49 d'ys | Cured | One case due to fallen eye lash getting into punctum l. |
| Hyperæmia | 111 | 44 | 83 | 72 | 1 | 70 | 29 | ²⁰ / ₁₀ | ²⁰ / ₆₀ | Borax wash or AgNO ₃ gr. ij to v | Sixteen days | Cured | |
| Hypertrophy of papillæ | 1 | | | 1 | 9 | | | ²⁰ / ₁₅ | | AgNO ₃ solid stick | Two days | Cured | |
| Lithiasis | 2 | 1 | 1 | 2 | 36 | 45 | 40 | ²⁰ / ₂₀ | | Scraped out | | Cured | |

DISEASES OF CONJUNCTIVA. — CONTINUED.

| DIAGNOSIS. | RACE: | | SEX: | | AGE: | | VISION: | | TREATMENT. | DURATION OF TREATMENT. | CONDITION ON DISCHARGE. | REMARKS. |
|--|-------|-----|------|-----|------|----|---------|-------|---|---|-------------------------|--|
| | W. | N. | M. | F. | from | to | avg. | from | | | | |
| Oedema of conjunctiva and lid (monocular malarial) | 2 | | | 2 | 11 | 17 | | 20/20 | Quinine in full doses | Four days | Cured | |
| Pinguecula, inflamed | 10 | 10 | 10 | 10 | 18 | 40 | 26 | 20/15 | Yellow ox. mercury salve | Two cases observed recovered in 10 days | Cured | |
| Pterygium | 55 | 29 | 52 | 32 | 12 | 78 | 35 | 20/12 | Removal under cocaine in 56 cases others declined operations. | In 41 cases average 10 days | Cured, 56 cases | R.E. 10, L.F. 13, o. u. 7; not noted fifty four cases. |
| Symblepharon | 2 | | 2 | | 11 | 29 | | 20/30 | Mild astringents | Never returned | | One traumatic, 1 burn with lime. |
| Tumor: Dermoid | | 3 | 2 | 1 | 3 | 14 | 7 | 20/20 | Remov'd under cocaine i; chloroform, 1 case | Twenty three days | | |
| Melanotic fibroma | | 1 | | 1 | | 15 | | 20/20 | Removal under cocaine | Nine days | Cured, 2 cases | |
| Papilloma | 3 | | 3 | | 29 | 59 | 41 | | Removal under cocaine, 2 cases | Five days | Cured | |
| | | | | | | | | | Cauterized with carbolic acid, 1 case | One 6 and one 13 days | Cured, 2 cases | |
| Ulcer in lower cul-de-sac | 1 | | 1 | | | 59 | | 20/30 | AgNO ₃ gr. x; K. I. gr. x t. i. d. | Never returned | | |
| Wound | 3 | | 3 | | 13 | 31 | 23 | 20/20 | Hot bathing and borax wash | Fourteen days | Cured | Von discharge=20/20. |
| Totals . . . | 928 | 362 | 643 | 647 | | | | | | Discharged at once | | |

Percentage of Females, 50 + .%. Percentage of Negroes, 28 + %.

[Tables to be Continued.]

trachoma among negroes is confirmed by this table, only 2% of trachomatous patients were found. I do not remember a case in a really dark negro. All were mulattoes. Indeed trachoma is not common among our population in general, our figures showing but 9% in the whites or only 92 (7+%) of all the 1,290 conjunctival cases. The disease seems to be almost entirely confined to German and Italian (Dago) emigrants with some cases from other states among low-class Irish.

Elsewhere (*ut supra*) I have ascribed this to the better conditions of food and ventilation under which our laboring classes live. Of corneal disease, ulcers and leucomata (the scars of ulcers) form 55+% in negroes and only 31+% in whites. It is singular that more than three times as many foreign bodies were removed from the corneæ and more than twice as many from the conjunctiva of whites as from those of negroes. These figures well illustrate the necessity for a knowledge of the habits and character of the race in drawing conclusions from such data. They are beyond doubt explicable by the facts that negroes seldom seek professional aid until the mischief has become serious (often irremediable) and that in this country they are comparatively infrequently employed as mechanics.

OBSERVATIONS CONCERNING THE ENDOTHELIAL LINING OF THE ANTERIOR CHAMBER IN HEALTH AND DISEASE.

[WITH MICRO-PHOTOGRAPHS.]

BY ADOLF ALT, M.D., ST. LOUIS, MO.

[CONCLUDED FROM JUNE NUMBER.]

Such enormous quantities of newly formed tissue on the anterior surface of the iris are not very frequently found. Yet smaller amounts of it, and especially concerning smaller portions of the iris, particularly in its lower half, are not so rarely seen.

In fact, whenever an occlusion of the pupil has taken place

and epithelial membranes, and in many cases, the growths are the result of the overgrowth of the endothelium of the new formed connective tissue, which may be seen in many places where else, it is always found in a regular layer (see Fig. 1). Figure 1 shows such a growth on the anterior surface of the iris which further shows the endothelium of the pupillary membrane of dense connective tissue.

However, the new formed tissues may also separate in regular connective tissue, as seems to be the case in the stimulations, the necessity of which by stimulation of the endothelium on the anterior surface of the iris, supports that certain tissues and forms and connective tissue formations on the anterior surface of the iris, in the eye, which was

larger amounts of blood have entered the anterior chamber, are frequently the cause.

Whether every proliferation of the endothelial cells may and will finally lead to such tissue-formations, it is impossible to say.

In some forms such a proliferation may surely exist and continue for a long time without producing spindle-cells and forming connective tissue.

This I have seen particularly in several cases of traumatic cysts of the iris. In Figure 2 the endothelium covering the remnant of iris-tissue which forms the cystwall is seen to be covered by endothelial cells which having formed layer upon layer seem to undergo a regressive metamorphosis, as they do not take on any staining. In other parts of the same specimen the nuclei can be stained yet poorly so. Nowhere is there one single layer of cells, however, as I have seen in other cases.

Finally, probably after a long period of existence the newly formed tissue, as well as the endothelium covering it, may undergo a regressive metamorphosis. This I have seen on two occasions in eyes of old people which had been injured many years previously. In these cases the iris tissue was perfectly atrophic and its bloodvessels had altogether disappeared.

The anterior surface of this iris tissue is (see Figs. 3 and 4) covered with a layer of a homogeneous strongly refracting substance from the anterior surface of which cell-bodies protrude. Although these protrusions take up no nuclear stain,



FIG. 1.

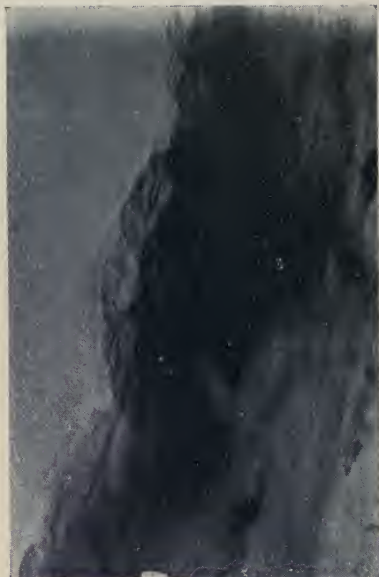


FIG. 2.



FIG. 3.



FIG. 4.

served cases similar to those he describes in non-malarial individuals, which finally yielded to other lines of treatment.

His cases, commencing "as a line of small grayish elevations, which soon broke down, forming a furrow of ulceration," numbered one hundred and twenty, which is, numerically, an argument against the identity of the disease with keratitis dendritica; for those advocating the isolated identity of the latter insist upon its rarity, protracted course and the inefficiency of treatment, which also is in discord with Kipp's observations, whose cases recovered with reasonable celerity under anti-malarial treatment, mild local remedies and the occasional use of the actual cautery.

In the discussion following Kipp's paper, Noyes, Sutphen, Green and Theobald concurred in having seen similar cases, apparently associated with malaria, and Gruening, while having met cases of this nature, considered them to be due to the saliva form tartarized teeth, with which some patients moisten the lids.

Altogether, Kipp's paper and the ensuing discussion would lead one to suppose, *not* that keratitis dendritica (so-called) was under discussion, but a form of corneal ulceration, sometimes assuming dendriform outlines—arbitrarily denominated malarial keratitis.

Horner, Kendall, Adler, Wangler, Hagnauer and other authorities describe a disease evidently intended to be identical with the foregoing, which is, primarily, of a distinctly herpetic type, frequently accompanied by herpes zoster facialis. Non of these observers disavow the possible malarial impulse preceding herpes, wherever situated, but stoutly maintain the occurrence of dendriform ulcerations in cases where no malarial tendency can be ascertained.

Fuchs, in one section of his work, classes the ulceration as of the serpiginous variety, and in another speaks of it as a form of herpes febrilis corneæ, a name originated by Horner. He evidently does not recognize a district type of ulceration, but considers keratitis dendritica as a mere peculiar outline of corneal ulceration, liable to occur in most varieties of the disease. He advocates especial, distinctive treatment, but discourages the use of eserine, as liable to provoke iritic complications and adhesions.

In 1884-85, Hansen Grut and Emmert coincidently de-

scribed the disease under consideration, and the former gave it the name of keratitis dendritica. Emmert believed it to be of scrofulous or tuberculous origin, but in this position he appears to be isolated. The followers of these two authorities dignify the affection into a distinct and typical variety of corneal ulceration, susceptible of an individual nomenclature, pathology and treatment. Noyes adopts the name proposed by Emmert and calls it "keratitis dendritica exulcerosa mycetica." He says:

"By this title Emmert describes cases which begin with a small superficial ulcer, and extend in a dendritic or branching form, close under the surface, making a figure resembling the twig of a tree. The lines are white and the epithelium is soon shed, leaving open furrows. Subjective symptoms are severe, and if the case when first seen is well advanced, it will be obstinate: recovery occupying six or more weeks. Investigation found bacilli in the infiltration.

"The only successful treatment was washing the eye with corrosive sublimate 1 to 1000 (how often is not stated), and repeated use of eserine vaseline ointment 20%. There is no tendency to iritis. For months after recovery the white streaks could be discerned. Hansen Grut describes cases, which in many respects are similar, but in which the subjective symptoms were not so severe and ulceration did not take place over the line of infiltration. He believed them to be mycotic, but was not able to prove it."

Schmidt-Rimpler calls it "furrow keratitis" and says:

"Linear prolongations proceed from a shallow corneal ulcer and subsequently ramify, and, after exfoliation of the surface, are converted into narrow deep grooves with gray edges. There is often photophobia with pronounced epiphora. The process lasts several weeks on account of the constant new formation of the branches, and leaves characteristic opacities for some time. (Emmert, Hansen-Grut.)

"At the beginning the irrigation of the foci, with a solution of corrosive sublimate and the application of eserine, appear to be useful."

Swanzy says:

"This is a rare affection to which attention was first drawn by Hansen Grut of Copenhagen. It is a very superficial and chronic ulceration, with but little infiltration on its margins or

floor and presenting the appearance of a fine groove in the cornea. It spreads chiefly over the central region of the cornea, by throwing out branches on either side. The pain and irritation is sometimes severe and again but slight, or quite wanting. Some permanent opacity often remains when cure has been effected. The cause has not been definitely ascertained but the peculiar progress of the affection renders it almost certain that some special fungus is engaged.

TREATMENT.

Scraping with a sharp spoon, with the subsequent application of 1 in 1000 solution of corrosive sublimate, is recommended by some and the actual cautery is of great use; but I am inclined to think, from my experience with the last few cases of the disease I have had under my care, that the application of absolute alcohol affords the most certain and rapid cure. I soak a bit of lint in the alcohol and scrub the surface of the cornea with it. This may require to be repeated two or three times."

Berry says:

"Another form of keratitis, which there is every reason to look upon as being also caused by some particular microbe, has only lately received attention since it was described by Hansen Grut. The characteristic of this inflammation is a great tendency to a kind of ramifying superficial extension. It is a very chronic affection and the amount of infiltration surrounding the ulcerated rills, which it forms, is so slight as to render the peculiarity of its propagation liable to escape detection, unless a proper examination be made by oblique illumination. The pain caused by this inflammation is slight, though sufficient to give rise to some discomfort and photophobia. When uncomplicated, this form of keratitis is always superficial and not accompanied by hypopyon. In not a few cases, however, which begin in this way, and no doubt as the result of inoculation with more active micro-organisms, a serpiginous hypopyon ulcer may make its appearance. The cause is not known. It is a tolerably rare affection, met with in both sexes, and for which the name, dendriform superficial keratitis, seems the most appropriate. The nebulous opacities, which remain for some time after recovery has taken place, have the characteristic ramifying appearance. The

treatment I have found most efficacious is to scrape the ulcerated rills with a small spud, such as is used for removing foreign bodies from the cornea, and afterwards apply a strong solution (1 to 1000) of corrosive sublimate, directly to the cornea, with a camel's hair brush, giving at the same time the iodoform ointment for frequent use. Latterly I have used pyoktanin which, though altogether useless in deeper corneal ulcerations, appears to be even more suitable than stronger antiseptics in dendritic keratitis. Chlorine water is also useful, when freshly prepared."

I now beg leave to report a case of my own, which, although varying in some features, was undoubtedly the keratitis dendritica of various authors.

Mr. D. T., age 30, suffers from gonorrhœa and gonorrhœal ophthalmia; the latter of a very mild type, which, when practically recovered from, left him with a central corneal ulcer of distinctly dendritic outlines.

The ulceration was superficial, certainly not extending deeper than the epithelium, and anterior elastic membrane, and when the cornea was cocainized and rubbed with a cotton tufted probe, the necrotic corneal tissue rolled up like thin birch bark, in the direction of healthy tissue, leaving the underlying corneal membrane perfectly healthy, clear and smooth. The ulceration did not at any time, extend beyond the most superficial corneal layers and the cornea never became injected or vascular. The dendriform character of the ulceration persisted in spite of frequent cauterizations, scrapings, etc., but finally its outlines succumbed to long interference and the necrotic area appeared very much like any other extensive corneal ulceration. I had the opportunity of watching the progress of this ulcer from its inception and found that it commenced as a fine irregular line of opacity, directly over the pupil, which soon necrosed, leaving a shallow furrow, with a healthy base. To either side of this central stem appeared several punctated opacities, which ulcerated, and subsequently became connected with the long central branch by a narrow furrow of ulceration.

The ulceration proceeded from the minor stems inwards, instead of from the major branch outwards. Thus the dendriform outlines, with club-shaped extremities, became established, and the case developed into what is known as kerati-

tis dendritica, unaccompanied at any time by indications of Zoster.

The patient suffered extreme pain and photophobia, which persisted with increasing violence, for six or seven weeks, until a very protracted healing occurred. The pupil was, with much difficulty, kept moderately dilated, but there was at no time any indication whatever, of iritis or hypopyon, although a mild conjunctivitis persisted during the whole course of the disease. His general condition, physically, mentally and nervously, was extremely poor, although he was invigorated by generous tonics, including enormous doses of quinine and arsenic.

The local treatment was thorough and varied, including atropine, hot fomentations, bichloride solutions, chlorine water, aristol, iodoform, formaline, galvanism, as recommended by Dunn, actual cautery, nitric acid, scrubbing with alcohol, etc., but I was unable to perceive much improvement from any of the enumerated remedies. I think the best results were obtained by the use of atropine, hot fomentations, scrubbing with alcohol and a saturated solution of boracic acid, used frequently in the eye-cup. The eye improved coincidentally with the general health and I think that such cases will perhaps always exist in individuals of depreciated vitality. The recovery was complete and, to my surprise, but little corneal opacity remains, although the ulcerated area was extensive.

Since then I have seen several cases of corneal ulcerations, assuming dendriform outlines, but none of them possessing the marked history of the foregoing, and I am beginning to feel that I have probably seen many such but have failed to recognize them.

Three distinct cultures were made for me at the Bacteriological Laboratory of the Minnesota State University of scrapings from the ulcerated surfaces, but failed to find anything distinctly characteristic, which would seem to disprove Swanzy's view, that the destructive process is instigated by "some special fungus."

From my experience with this case, coupled with the several bacteriological examinations made, I do not believe the disease to have a distinctive character. It is simply an obstinate superficial corneal ulceration, occurring in debilitated patients, and while dendriform outlines may be assumed, this

fact alone is surely not sufficient to render advisable a separate and confusing nomenclature and pathology

REPORT OF A REMARKABLE CASE OF PERSISTENT VISUAL IMAGE, CAUSED BY MONOCULAR NEURO-RETINITIS.

BY L. R. CULBERTSON, M.D., ZANESVILLE, OHIO,

OCULIST TO U. S. PENSION BUREAU FOR SOUTHEASTERN OHIO; OCULIST TO CITY HOSPITAL; B. Z. & C., AND C. & M. V. R. R., ETC.

Mrs. B. U., aged 40. Refraction R. E. + 2.5 D. sp. $\bigcirc - .5$ cyl. 165, V. = $\frac{1}{1x}$; L. E. + 2.5 D. sp. $\bigcirc - .5$ cyl. 165 = $\frac{4}{iv}$. Can only see slightly with outer half of retina of right eye. Says that for some time has had hemianopsia with this eye but none with the other eye. Also that she had anisometropia with this eye. For over a year she has had a most remarkable symptom in this eye, *i. e.*, that when she would look at a persons' face with the right eye, or if she would look at a newspaper, or any object, and then look across the room she would see distinctly the image of the face or type, or object she had been looking at and that the visual impression would last sometimes for five or six seconds. That she never saw these images in absolute darkness (no hallucinations therefore), although they appeared brighter by gas or lamp-light. I tested the eye with various colors to ascertain if the visual image would appear in the complimentary of the color shown, but it did not.

Says she constantly sees "flashes of light" before the eye. Says that fingers constantly pain her and joints swell at times. Has chronic rheumatism but never had acute rheumatism. Is very nervous. Frequently has neuralgia and headache.

Bowels and menstruation regular. Urine s. g. 1020, no albumen, no sugar, no tube-casts or uric acid. Did not test for urea.

Ophthalmological examination: R. E., severe neuro-retinitis ("wooly disc"), veins very large and arteries fine, vessels

indistinct in stroma from retinitis. L. E., disc hazy from papillitis; veins enlarged, arteries normal. Disc too pale and shows atrophic cupping. Temperature normal in both eyes. Pupil reactions not tested. Dilate normally to atropia.

Diagnosis: Neuro-retinitis caused by eye strain and gouty diathesis. Gave the usual treatment. There is no history of sunstroke. All reflexes normal. No mental disease or injury to head or spine.

June 19. Under treatment retinal haze has greatly cleared and shows post-polar choroiditis and atrophic retinitis in right eye.

REMARKS.

I have consulted a large amount of ophthalmic literature and can find no case similar to this.

There have been reported cases of monocular diplopia, anisometropia, polyopia, etc., but none of persistent visual image.

It is my belief that this remarkable phenomenon is due to the highly inflamed condition of the rods and cones of the retina, which so stimulates them and exalts their function that they are capable of retaining impressions either by themselves or through the agency of the rhodopsin or visual purple. The inflammation may have produced an excess of rhodopsin and this being absorbed slowly, or the photo-chemical change taking place slowly, caused a slow fading of the visual image.

It is generally believed that visual images and colors are held for a short time through the agency of the visual purple. In speaking of the causes of erythropsia Dr. Fuchs,¹ (Vienna), says: "As the rods are impregnated with visual purple it is probable that the phenomenon of erythropsia is due to the excess of the production of this purple under the influence of an excitation caused by strong light and a very active regeneration."

Prof. Birnbacher,² in speaking of the specimens of retinae of animals exposed to light and stained with acid reagents (eosine), "the coloring is light and diffused. In those not exposed to light, the ellipsoid of the cone is stained a deep rose color or blue, the other portions of the retina remaining color-

¹Reports Ophthalmological Society, Heidelberg, August, 1895.

²Von Graefe's Archives für Ophthalmologie, Vol. XL, No. 5.

less. Evidently, then, under the influence of light, some of the retinal elements undergo a change in their chemical properties; this does not imply that the action of light is confined to the cones, or that it occurs within the interior of the ellipsoid of the cone."

Dr. Knies³ says that "the eye accommodated for black sees colors otherwise than when it is accommodated for light. He explains it by a special arrangement which consists in the fact that the rods alone have the property of accommodating for darkness, while the perception of the colors belongs to the cones."

J. H. de Hass⁴ says: "Upon the discovery of this color change (in visual purple), which depends on chemical alteration in the nerve substance, it was at once assumed that the chemical action was the origin of the nerve current and this was believed all the more readily when it was found possible to fix permanent photographic pictures upon the retina. But this chemical hypothesis was overthrown by the consideration, that the rods only and not the cones possess the purple color, that there are animals which, having no rods, see without the aid of the purple, and that, in the human eye, the yellow spot where vision is acutest, presents no cones and no purple. It is supposed that the rods are adapted for the perception of white light, and the cones for colors."

De Hass continuing his very able article discredits the visual purple theory.

While many of our ablest writers believe that the visual purple is necessary to sight, there are just as many who do not believe that it is essential.

I will leave it with my readers to decide whether this peculiar phenomenon was due to some abnormal condition of the visual purple, or to inflammation with exalted function in the rods and cones.

³Third International Congress of Physiologists at Berne, September, 1895. (Ann. d'Oc., C. XIV).

⁴Klin. Monatsblätt. für Augenheilkunde, July, 1882, p. 219.

OPHTHALMIC DIGEST.

By J. ELLIS JENNINGS, M.D.,

OF ST. LOUIS, MO.

A CASE OF ACUTE LOSS OF VISION FROM DISEASE OF THE ETHMOID AND SPHENOID CAVITIES. H. F. HANSELL, M.D., (*The Philadelphia Polyclinic*, May 23, 1896).

R. D., aged 17, awoke one morning with severe headache located mainly in the frontal region, and almost absolute loss of vision. He had gone to bed the night before in his usual health and had no disturbance in his sight. Upon examination a week later the following ocular condition was noted: The lids and conjunctiva were normal, the cornea and anterior chamber clear—the latter of normal depth; the irides were moderately dilated, and absolutely unresponsive to light; the lenses were clear, the vitreous chambers were clouded by a great quantity of minute opacities; the fundus of each eye were dimly seen, but their condition could be determined with moderate accuracy; the optic discs were pale; the arteries slightly contracted, and the veins normal in calibre, the edges of the disc were not obscured by other exudation than that in the vitreous. Each retina was œdematous, and toward the periphery a few grayish curved lines, marking linear detachments of the retina from the choroid, were visible in the lower parts. Vision was reduced to the perception of light in the extreme temporal parts of the field. In the absence of assignable cause for the ocular and cerebral œdema, he was referred to Dr. W. A. Freeman for examination of the cavities of his head. The view of the interior of the nose was completely obstructed anteriorly by immensely swollen turbinals, but posteriorly muco-pus in considerable quantity was seen flowing from the choanæ.

Thorough cocainization produced contraction of the con-

gestive intra-nasal discharges, and the nose soon became filled with thick purulent secretion. The discharge from both the superior and middle meatus, right and left, and from the upper back part of the inferior meatus, emanation of the maxillary and frontal sinuses, together with a degree of the other symptoms of any disease of these cavities pointed clearly to the diagnosis of acute purulent inflammation of the anterior and posterior ethmoid, superior sphenoid, and the left sphenoid sinus. The chronic purulent discharges of the internal carotid

and the external jugular sinuses, which were "intermittent" at most, were constant about the episthymic orifice, and the sphenoidal sinuses could hardly be directly opened by cannula which entered from within, it is separated by a wall from it externally together with the superior frontal congestion of the ethmoidal sinus, and in about ten days it healed, and there was no return of the discharges. Now, it is evident, the inflammation which has been incessantly maintained in the sinus of the orbit, have produced such a state they had scarcely healed, and the disease had more advanced, and the inflammation of the sinus of the orbit had increased gradually, and as the inflammation of the orbit had increased, and as the disease

the left hand, and the massage spoon is held in the right. The cornea is gently rubbed, alternately in a circular and radiating manner, from one to three minutes, and this is repeated as often as is indicated in the individual case. It is to be remembered that the uvea, or region just external to the corneal limbus, nourishes the cornea, the lens and the vitreous and is the great lymph producer for the eye, particularly the anterior segment. For this reason I desire to lay stress upon the fact that these movements should not be confined to the area immediately adjacent to the opacity, but should be applied not only all over the cornea, but also to the ciliary zone upon the sclera. After the massage has been practiced, I knead the globe with the thumbs of my two hands, carefully and thoroughly. By following out this, the lymph-channels are thoroughly opened, and the activity of the lymph-currents is increased.

As I have said in my first paper, we can not hope to entirely clear up a dense cicatricial mass as the result of a deep ulceration of the corneal stroma, but we may look for improvement in opacities in general in two ways: First, we know that surrounding this dense central mass there is, very often, an area of less dense opacity, due to cellular infiltration, and imperfectly organized corneal tissue. I have noticed that this infiltrated area has cleared up in a large number of cases, and vision has much improved. In the second place ulcers which have attacked the epithelial or superficial corneal layers only, leave opacities which are much benefited or are entirely dispersed by massage.

This method has been of noticeable value in hastening the reabsorption of episcleral nodules and in that intractable disease sclero-keratitis. The massage-spoon which I use is a spatula 6 mm. wide by 8 mm. long, traversed by three grooves, thus making four branches, which are perfectly rounded in order to prevent injury to the cornea. It will be seen that the cornea is thrown into several furrows, which, as the massage-spoon is moved over the surface, include the cornea and circum-corneal zone.

This is unattended with any injury and with very little or no discomfort to the patient. In some cases it is unnecessary to use cocaine, so tolerant does the eye become.

MISCELLANY.

DR. EDWARD JACKSON, having returned to Philadelphia, will resume his clinical service and teaching at the Philadelphia Polyclinic and Wills Eye Hospital.

DR. B. E. FRYER of Kansas City has been elected Clinical Professor of Ophthalmology and Otology in the University Medical College, Kansas City, Mo. We heartily congratulate the College.

A NEW LECTURERSHIP in Ophthalmology at Queen's College, Belfast, has recently been created in accordance with the regulations of the Royal University of Ireland, and the Council has appointed Dr. W. A. M'Keown as the first incumbent of the new office.

AN IDEAL NON-IRRITATING SALVE is claimed by Dr. W. Allan Johnson (*Brit. Jour. Derm.*, April, 1896), to be made by the following process:

| | | | | | | |
|--------------------------|---|---|---|---|---|-------|
| R _x Lanolini, | - | - | - | - | - | 3iij. |
| Ol amygdalæ, | | | | | | |
| Aq. dest., āā | - | - | - | - | - | 3ss. |

M.

If smeared thinly on the lids this occasions no unpleasantness it may be employed when it is desirable to use a salve to prevent the lids from being glued together from any increase of the lachrymal secretions. It is, however, better to add a grain or so of boric acid to prevent any possible rancidity, though this is not likely to happen even though the ointment be kept for some time. In eczema of the lids this salve forms a pleasing vehicle for the yellow oxide of mercury so beneficial in those cases, two grains being added to the half-ounce. According to the testimony of patients, the salve gives a pleasing sensation of coolness without a trace of smarting or irritation. Its curative influence, the author says is equal, if not superior, to that of any of the other eye-salves prepared with other bases.

HONORS TO DR. ARGYLL ROBERTSON.

Dr. Argyll Robertson has been honored by the Edinburgh University with the degree of LL.D. In presenting him, Professor Grant said: "There are none upon whom the University can more fittingly bestow its highest honor than those who have risen to pre-eminence in that noble profession for which the bulk of our students are occupied in equipping themselves. In the special Department of Ophthalmology, Dr. Argyll Robertson—it is indeed superfluous to remind an Edinburgh audience—holds a unique position. Countless voices will bear grateful testimony to the skill of the practitioner whose healing hand has literally lightened the darkness of their lives. But his reputation rests perhaps in a greater degree on his work as an original investigator. He has examined with fruitful results the mode in which the eye accommodates itself to the objects near and distant, and the effects of medicine on that adjustment; and above all, he has discovered that certain symptoms of the pupil are indicative of a disease of the spinal cord. These symptoms have now in the medical world become associated with Dr. Argyll Robertson's name. The regard in which he is held is testified to by his appointment to many distinguished offices. He was for several years lecturer on ophthalmology in the University of Edinburgh, and it was with a lively regret that the University received last year his resignation of an office which he had discharged with such acceptance. He has enjoyed the rare distinction of acting as President of the International Ophthalmological Congress, and he is the only oculist not resident in London who has been called to fill the Chair of the Ophthalmological Society of the United Kingdom. (Applause). To these distinctions, sir, I now ask you to add that of Doctor of Laws in this University. (Applause).

DR. G. BERRY has been elected to fill Dr. Argyll Robertson's place at the Edinburgh University.

BOOKS AND PAMPHLETS.

TECHNIQUE DE L'EXPLORATION OCULAIRE. Par
L. VIGNES. Paris. A. MALOINE, Editeur. 21 Place de
L'Ecole-de-Medicine.

Since Landolt's admirable little book of a similar kind no better introduction to the study of ophthalmology has been presented than Vigne's excellent work on the examination of the eye. It is much more exhaustive than Landolt and in many respects rather too technical for the beginner but the arrangement is logical and we have here an excellent digest of the entire subject. Commencing with a chapter on the anatomy of the eye, a short but very clear statement is made of its embryogenesis, and the author then passes at once to the physiology and to physiological optics. Just enough is given of the latter to show its practical bearing in the detail of examination and to illustrate well the principles upon which depend the ophthalmoscope, the ophthalmometer and other instruments of precision used for testing vision. The chapter on the movements of the eye deals first with the binocular vision and then the methods of clinical examination are all set forth, the writer not allowing himself to be drawn into discussions in regard to the mooted point of muscular dynamics, however tempting they may be. In a word, Vigne gives to us a clear statement of the most recent facts in regard to the questions with which he deals, and if a translation were offered to the English reading portion of the profession, this would probably be as popular a text-book with us as it has already become with those for whom it was first intended. It is apparently the first of a complete system of ophthalmology and the other volumes will be certain of a welcome if they reach the same high standard of excellence, as has this. L. H.

PAMPHLETS.

"Indio." By Walter Lindley, M.D.

"Aseptolin." By Cyrus Edson, M.D.

"Report sur la vision binoculaire, sa perte et son rétablissement." By Dr. Ed. Meyer.

"A Case of Paranoia Unrecognized for Twenty-eight Years and Its Lesson." By E. C. Runge, M.D.

"Eine Augenspiegellampe, etc." By Dr. O. Eversbusch. (An ophthalmoscopic lamp for gas or electric light).

"Errors in the Literature on Javal's Ophthalmometer for the Measure of Astigmatism." By G. W. Grove, M.D.

"Isolated Rupture of the Iris, Unaccompanied by Injury to any of the Adjoining Structures." By Wendell Reber, M.D.

"A Perfected Series of Test-Words Intended for the Determination and Estimation of the Power of Accommodation." By Ch. A. Oliver, M.D.

"Studies from the Yale Psychological Laboratory" Edited by E. W. Scripture, Ph.D. Volume III. Yale University, New Haven, Conn. Price, \$1.00.

"Behandlung der bei Vergiftungen vorkommenden Erkrankungen des Sehorgans." By Dr. O. Eversbusch. (Treatment of eye affections due to general poisoning).

"Ueber die Behandlung des chronischen Trachom's (conj. gran. spl. Saemisch) and seiner Folgezustände." By Dr. O. Eversbusch. (Treatment of chronic trachoma and its sequelæ).

"The Newer Remedies—A Reference Manual for Physicians, Pharmacists and Students." By V. Coblentz. New York: D. O. Haynes. 1896. Second Edition. Revised and Enlarged. Price, 50 cents.

"Behandlung der bei Erkrankungen der Atmungsorgane und bei Kreislaufstörungen vorkommenden Erkrankungen." By Dr. O. Eversbusch. (Treatment of eye affections due to diseases of the respiratory organs and circulatory apparatus).

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ORIGINAL ARTICLES.

HOMATROPIN AS A CYCLOPLEGIC.

BY HOWARD F. HANSELL, M.D., PHILADELPHIA, PA.

The single superiority claimed for homatropin over the other mydriatics in common use, atropin, duboisin, scopolamin, hyoscymin, is the speedy subsidence of the paralysis of accommodation after its use. The points of inferiority are its cost, the number of instillations necessary and the conjunctivitis frequently produced by its application. These are, however, insignificant compared to its brief period of action. The annoyance of impaired distant vision, the inconvenience of the utter loss of reading power, the photophobia from dilated pupils are sometimes insuperable objections to the use of the other mydriatics and so homatropin has grown more and more into favor and is recommended whenever the patients time is limited. In order, however, to secure accurate and complete results its use must be restricted to certain cases, those in which the accommodation has already been in part lowered by weakening of the ciliary muscle or stiffening of the lens. *Homatropin can not be relied upon to completely paralyze accommodation in young individuals* where complete paralysis must be assured. In such cases it is better to attempt to correct ametropia without it since in that effort there would be no uncertainty as to whether one were dealing with full correction or with the correction of the apparent defect, and we would not be misled into believing that the glass selected was the

measure of the total ametropia. The danger of precipitating acute glaucoma is greatly exaggerated. To know that this disaster is possible is a sufficient guarantee in the hands of the careful surgeon that it will not occur. Moreover one drug is not more dangerous than another since it is not the effect of the alkaloid itself but of the dilatation of the pupil, mechanically blocking up the angle of the anterior chamber. Morton's observation (*Annals of Ophthalmology and Otology*, April, '96) furnishes a striking illustration of the unreliability of homatropin as a cycloplegic in estimating errors of refraction. A girl, fifteen years of age, complained of long-standing, severe headache. Repeated instillations of homatropin were made extending over a period of two days. The test showed R. and L. — .75 ax. 180. These glasses were ordered and worn without relief to the symptoms. In a few weeks atropin was used and the refraction was found to be hypermetropic, the reverse of the above—R. and L. + 1.50 \bigcirc + .75 c. ax. 90. The proper correction promptly cured the trouble.

A case of my own is a further illustration of the opinion that homatropin ought to be reserved for those persons whose accommodation is already lowered by age and that it is not to be depended upon to paralyze a strong ciliary muscle. M. S., aged 25, has had marginal blepharitis many years. In addition to the ordinary treatment for this affection I examined for a defect of refraction under the mydriasis of homatropin (gr. 8-3j, applied every ten minutes for an hour). I detected a very low hypermetropia and astigmatism. Constant wearing of the glass and local treatment had no effect upon the red and sore lids. Six months later, fearing that some uncorrected error remained, I used duboisia and found three times as much hypermetropia as I had determined under homatropin. Under the new and full glass the marginal blepharitis completely recovered.

PROF. HANSEN GRUT, of Copenhagen, has resigned his position. Professor Bjerrum was called to succeed him as Professor of Ophthalmology.

DR. GEO. E. DE SCHWEINITZ, Professor of Diseases of the Eye in the Philadelphia Polyclinic, has been appointed Professor of Ophthalmology in Jefferson Medical College to succeed Professor William Thompson, resigned.

A NOVEL WAY OF WEARING AN ARTIFICIAL EYE.

BY SAMUEL THEOBALD, M.D., BALTIMORE, MD.,CLINICAL PROFESSOR OF OPHTHALMOLOGY AND OTOTOLOGY, JOHNS HOPKINS
UNIVERSITY.

Mr. X., a young man in mercantile life, consulted me recently for a mild attack of specific iritis in the right eye—the only eye which he possessed—as his left eye had received a severe injury, and had been enucleated some years before. The fact that he was wearing an artificial eye in place of the lost organ was, of course, manifest at a glance; but it did not occur to me that there was anything unusual about it, except that its falseness was rather conspicuous, and that the left side of his face wore a somewhat sinister scowl. Wishing to satisfy myself, in view of the presence of iritis in the opposite eye, that there were no remains of the lost eye in the orbit, I requested him to remove the artificial eye; whereupon, I discovered the feature of the case which seemed to make it worthy of being placed upon record.

From some unexplained cause the conjunctival sac of the enucleated eye had become so contracted that it was not possible for him to wear an artificial eye in the usual manner. Nothing daunted by this drawback, he determined to do the next best thing, and, if he could not wear an eye behind the lids, to wear one in front of them. He had, therefore, acquired the knack of holding the artificial eye in position, in front of the palpebral aperture, as an Englishman does his monocle. The eye which he wore was a rather small one, and he placed it with its long axis vertical. Its upper and lower margins were completely hidden by the overhanging folds of the lids, and its lateral edges were, at least, not so conspicuous as one would suppose must have been the case. The result, from a cosmetic point of view, was certainly not an unqualified success; but, it was far better, except for the scowl, than might be imagined.

Whether this manner of wearing an artificial eye is altogether unique I am unable to say, but to me, at all events, it was a decided novelty.

DISEASES OF THE CORNEA AND SCLERA. — 764 CASES.

[Continued from July Number.]

| DIAGNOSIS. | RACE: | | | SEX: | | AGE. | | VISION: | | TREATMENT. | DURATION OF TREATMENT. | CONDITION ON DISCHARGE. | REMARKS. |
|--|-------|----|---|------|----|------|----|---------|------------------|------------------------------|---|---|--|
| | W. | N. | | M. | F. | from | to | avg. | from | to | | | |
| Abrasion | 29 | 4 | | 32 | 1 | 2 | 65 | 30 | $\frac{20}{15}$ | Eng. 2 ft. | Two atropine and hot bathing 3 and 10 days One eserine and HgCl ₂ 14 days 1 to 5000 One cocaine and hot bathing 7 days Two cases yellow ox. 1 case 2 and 1 merc. salve 50 days One yellow ox. merc. 12 days salve, heat and atropine Atropine, hot bathing, 1 case 30 days, 2 no record paracentesis 5 days One case atropine 5 days One case heat and borax wash 13 days Two cases heat, borax wash and atropine 39 days One case yellow oxide merc. salve and heat 58 days Two cases atrop., cocaine and castor oil, heat and borax wash 30 days One case atropine and astringents 48 days | Cured, 7 cases. Others prescribed for and discharged at once | |
| Abscess | 1 | 2 | | 3 | | 2 | 13 | 9 | $\frac{20}{300}$ | l. p. | Ant staphyloma | | |
| Burn | 14 | 5 | | 14 | 5 | 4 | 70 | 18 | $\frac{20}{30}$ | Eng. 1 ft. | 7 cases average 27 days | | With cigar 1; with HCl 1; with creosote 1; hot water 1; ammonia 1; hot iron 1; lime 8; gun powder 5. |
| Cicatrix, with incarceration of lashes | | | 1 | | 1 | | 17 | | | Lashes removed under cocaine | No further record | | |

| Foreign body on the cornea | 187 | 23 | 187 | 23 | 1 | 70 | 27 | 20/10 | 20/200 | Removal under cocain. | 15 cases from 1 to 19 days; others discharged | Cur. d 210 cases | Body in eye from one day to two months. In 73 cases R. E. affected 43, L. E. 30 times. |
|---|-----|----|-----|----|----------|----|----|--------|------------|--|---|---|--|
| Keratitis, herpetic | 2 | 1 | 2 | 1 | 26 | 40 | 31 | 20/20 | 20/200 | One case yel. ox. merc. salve: one the same with hot bathing | 11 and 16 days | Cured 2 cases | One case herpes of lips also noted. |
| Keratitis, interstitial | 30 | 12 | 14 | 28 | 3 | 59 | 17 | 20/30 | l. p. | Five cases atrop., yel. ox. merc. salve and heat | 30, 36, 50, 51 and 97 days | Cured 73 cases | |
| | | | | | | | | | | Three cases atrop., yel. ox. merc. salve and heat and HgCl ₂ internally | 80, 81 & 138 days | 9 cases average 73 cases | |
| Keratitis, malarial | 1 | | 1 | | | 35 | | 20/20 | | One case atrop., heat and cod liver oil | 94 days | Cured 9 cases | General health noted as poor in 9 cases. |
| Keratitis, superficial | 56 | 34 | 47 | 43 | 2 months | 66 | 25 | 20/20 | Fng. 1 ft. | Quinine in large doses | 2 days and then ran off | U: improved | |
| | | | | | | | | | | Ten cases atropine, heat and yel. ox. salve | 10 cases average 28 days | General health noted as poor in 15 cases; in 11 cases duration of disease at time of consultation from 1 wk. to 1 mo.; in 16 cases from 1 mo. to 5 years. | |
| | | | | | | | | | | Two cases same with HgCl ₂ internally | 20 and 151 days | Cured 13 cases | |
| Keratitis, superficial, with conjunctivitis | 3 | | 2 | 1 | 26 | 55 | 39 | 20/40 | 20/200 | One case yellow ox. merc. salve and AgNO ₃ gr. ij | 28 days | Cured | |
| Keratitis, traumatic (oyster oper's) | 1 | | | | 18 | | | 20/20 | | AgNO ₃ & borax wash | 1 case 23 days | | |
| Kerato-conus | 1 | | | | 18 | | | 20/200 | | Yel. ox. merc salve and atropine | Ran off | | |
| | | | | | | | | | | None | | Stationary | |

| | | | | | | |
|----|----|-------|--------|---|--|---|
| 65 | 42 | 20/30 | l. p. | Calomel insufflation & 10 days heat, 1 case Calomel locally and 63 days mixed treatment, 1 case Atropine and bandage, 24 days 1 case Atropine, heat, yel. ox. 30 days salve, iridectomy, 1 case Eserine in solution of HgCl ₂ frequently; pupil kept dilated with atropine; 1 case Curetting, atrop., bandage, 1 case Atropine, heat paracentesis, 1 case Cauterized with carb. acid, heat, atropine, 1 case Duration unknown | Worse 1 case Cured 40 cases | Health noted as poor in 20 cases; 7 cases known to have been traumatic. |
| 75 | 40 | 20/40 | 15/200 | Yel. ox. salve, atrop., heat, 1 case Paracentesis; enucleation in 33 days Snipping off, atropine, bandage, 1 case Snipping off, atropine, yel. ox. salve, heat, 1 case Eserine in solution HgCl ₂ 1 to 5000; 2 cases | Cured 4 cases Improved one case Improved Improved | |
| 45 | 15 | 20/20 | l. p. | Atropine and hot bathing; 3 cases | Cured 5 cases | |

DISEASES OF THE CORNEA AND SCLERA. — CONTINUED.

| DIAGNOSIS. | RACE: | | SEX: | | AGE: | | | VISION: | | TREATMENT. | DURATION OF TREATMENT. | CONDITION ON DISCHARGE. | REMARKS. |
|--|-------|-----|------|-----|------|----|------|---------|-------|--|------------------------|---------------------------------|----------|
| | W. | N. | M. | F. | from | to | avg. | from | to | | | | |
| Wound, perforating, with prolapse | 3 | | 2 | 1 | 10 | 36 | 25 | 20/20 | 0 | Snipping off, atropine heat | 4, 14, and 153 days | 1 cured, 1 improved and 1 worse | |
| Wound, punctured of cornea and lens | 1 | 1 | 2 | | 13 | 37 | | l. p. | | No further record | | | |
| SCLERA: | | | | | | | | | | | | | |
| Episcleritis | 1 | | 1 | | 17 | 44 | 26 | 20/20 | 20/25 | Unrecorded | 1 12, and 1 5 days | | |
| Episcleritis (mild) | 4 | | 4 | | 17 | 40 | | 20/20 | 20/30 | Vel. ox. salve, 2 cases Quinine; 1 case Potass. iod.; 1 case | Unknown 12 days | | |
| Foreign body in sclera | | 1 | | 1 | | 34 | | 20/20 | | Removal under cocaine. | 2 days | Cured 3 cases; 1 unknown | |
| Penetrating wound with pin, secondary iritis | 1 | | 1 | | | 9 | | | | Atropine and hot bathing | Unknown | | |
| Total corneal cases, . . | 535 | 222 | 508 | 239 | | | | | | | | | |
| Total scleral cases, . . | 6 | 1 | 2 | 5 | | | | | | | | | |
| Grand total . | 541 | 223 | 510 | 254 | | | | | | | | | |

Percentage of Females, 33 + %.

Percentage of Negroes, 29 + %.

DISEASES OF THE IRIS, CILIARY BODY AND CHOROID. — 383 CASES.

| DIAGNOSIS. | RACE: | | SEX: | | AGE: | | | VISION: | | TREATMENT. | DURATION OF TREATMENT. | CONDITION ON DISCHARGE. | REMARKS. |
|--|-------|----|------|----|------|----|------|-----------------|------------------|------------------------------------|-----------------------------|----------------------------------|--|
| | W. | N. | M. | F. | from | to | avg. | from | to | | | | |
| Choroiditis, plastic (all forms) | 38 | 5 | 29 | 12 | 16 | 76 | 36 | $\frac{20}{20}$ | l. p. | Potass. iod. to limit of tolerance | Average 70 days (7 cases) | Cured 4 cases; improved, 3 cases | Vision on discharge was $\frac{20}{15}$ in 1, $\frac{20}{20}$ in 3, $\frac{20}{40}$ in 2 and $\frac{20}{50}$ in 1 case. V. = $\frac{20}{20}$ on discharge. |
| Choroiditis, plastic irido- | 10 | 3 | 12 | 2 | 14 | 52 | 31 | $\frac{20}{30}$ | l. p. | Atropine and hot bathing | 1 case 69, and 77 days | Cured 2 cases | Vision improved from $\frac{20}{200}$ to $\frac{20}{60}$ and $\frac{20}{50}$. |
| Choroiditis, plastic retino- | 9 | 4 | 6 | 7 | 16 | 78 | 36 | $\frac{20}{50}$ | l. p. | Potass. iod. to limit of tolerance | 7, 14, 105 days, and 1 year | Improved four cases | |
| Choroiditis, plastic and detachment of retina | 2 | | 1 | 1 | 39 | 63 | | | l. p. | | | | |
| Choroiditis, plastic and secondary optic atrophy | 3 | 1 | 2 | 2 | 9 | 52 | 30 | Eng. 2 ft. | l. p. | | | | |
| Choroiditis, serous | 8 | 3 | 5 | 6 | 19 | 63 | 39 | $\frac{20}{20}$ | $\frac{20}{200}$ | None returned for treatment | | | Known to have been traumatic; 3; syphilitic; 1; rheumatic 1. |
| Total choroidal affections . . | 70 | 14 | 55 | 29 | | | | | | | | | |

Percentage of Females, 34 + % . Percentage of Negroes, 16 + %.

| | | | | | | | | | | | | | |
|--------------------------|---|---|---|---|----|----|----|------------------|------------------|--------------------------|--------------------|---------------|---------------------------------------|
| Cyclitis, irido, acute | 3 | 7 | 6 | 4 | 12 | 59 | 27 | $\frac{20}{20}$ | $\frac{20}{100}$ | Atropine and hot bathing | 1 37 and 1 63 days | Cured 2 cases | Vision on discharge $\frac{20}{20}$. |
| Cyclitis, irido, chronic | 1 | 1 | 1 | 1 | 38 | 39 | | $\frac{20}{100}$ | l. p. | Advised enucleation | | | |

DISEASES OF THE IRIS, CILIARY BODY AND CHOROID. — CONTINUED

| DIAGNOSIS. | RACE: | | SEX: | | AGE: | | | VISION: | | TREATMENT. | DURATION OF TREATMENT. | CONDITION ON DISCHARGE. | REMARKS. |
|--|-------|----|------|----|------|----|------|------------|-----------|--|-------------------------------------|-------------------------|--|
| | W. | N. | M. | F. | from | to | avg. | from | to | | | | |
| Cyclitis, old traumatic, with ciliary staphylocoma | 1 | | 1 | | | 20 | | l. p. | | Enucleation | Healed in 12 days | Improved | |
| Cyclitis, acute traumatic | 1 | | 1 | | | 65 | | l. p. | | Never returned | | | |
| Cyclitis, acute traumatic and hypohaema | | 1 | 1 | | | 19 | | l. p. | | Atropine and bandage | 58 days | Cured | Struck by cork. |
| Wound of ciliary region | 2 | | 2 | | 4 | | | | | Never returned | | | |
| Total ciliary affections | 8 | 9 | 12 | 5 | | | | | | | | | |
| Exclusion of pupil | 1 | 1 | 1 | 1 | 12 | 41 | 1 | 20/200 | l. p. | Advised iridectomy | | | |
| Hypohaema (traumatic) | 5 | 1 | 5 | 1 | 6 | 29 | 16 | 20/40 | 19/200 | One atropine and heat and 1 atropine and bandage | 18 and 12 days | Cured 2 cases | |
| Iritis, acute plastic (cause unknown) | 69 | 46 | 83 | 32 | 13 | 71 | 33 | 20/20 | Eng. 2 ft | Atropine and hot bathing | From 7 to 72 days; average 29 days | Cured 24 cases | Four cases of permanent synchia out of 19 cases cured. V. = 20/20 in 11; V. = 20/60, 20/200 in 2; and unrecorded in 6 cases. |
| | | | | | | | | | | Atropine, hot bathing and mixed treatment | From 20 to 50 days; average 35 days | Cured 2 cases | |
| | | | | | | | | | | sent to Charity Hospital | | | |
| Iritis, acute plastic leprous | | 1 | 1 | | | 38 | | 20/40 | | Atropine and hot bathing | 22 days | Cured 1 case | |
| Iritis, acute plastic rheumatic | 1 | 1 | 1 | 1 | 25 | 38 | | Eng. 1. p. | | Atropine and hot bathing | 14 to 89; average 31 days | Cured 8 cases | |
| Iritis, acute plastic specific | 30 | 26 | 39 | 17 | 18 | 55 | 30 | 20/20 | l. p. | Atropine and hot bathing | 10 to 47; average 24 days | Cured 7 cases | |

| | | | | | | | | | | | | |
|--|-----|-----|-----|----|----------|----|----|--------------------------------|--|--|------------------------------|--|
| Iritis, acute plastic traumatic | 6 | 9 | 5 | 10 | 12 | 64 | 32 | ²⁰ / ₂₀ | l. p. Atropine and hot bathing | 53 days | Cured 1 case | Vision on discharge= ²⁰ / ₂₀₀ , myopic. Vit. recus. opacities. Vision on discharge= ²⁰ / ₂₀ . |
| Iritis, acute plastic traumatic with hyphema | 1 | 1 | 1 | 1 | 49 | 65 | | l. p. | Atropine, hot bathing 24 days and bandage | 24 days | Cured 1 case | |
| Iritis, acute plastic traumatic with iridodialis | 1 | 1 | 1 | 1 | | 25 | | ²⁰ / ₂₀₀ | Atropine and hot bathing | 31 days | Cured 1 case | |
| Iritis, acute plastic with serous chorioiditis | 1 | | 1 | | | 22 | | ¹⁰ / ₁₀₀ | Atropine, hot bathing 10 days and mixed treatment | 10 days | Improved | |
| Iritis, acute purulent | | 2 | 2 | | 20 | 39 | | ²⁰ / ₄₀ | Fr. r returned | | | |
| Iritis, acute kerato (cause unknown) | 25 | 15 | 26 | 14 | 16 | 68 | 35 | ²⁰ / ₂₀ | l. p. Atropine, heat and yel. ox. salve | Average 39 days | Cured 7 cases | |
| | | | | | 9 months | 42 | 29 | ¹⁰ / ₂₀₀ | Atropine, heat and mixed treatment | 11, 36 and 56 days | Cured 3 cases | |
| Iritis, acute kerato traumatic | 3 | 2 | 5 | | | | | | l. p. Atropine and hot bathing | 12 and 30 days | Cured 2 cases | One case V. from l. p. t, ²⁰ / ₈₀ ; one from ¹⁰ / ₂₀₀ to ²⁰ / ₁₀₀ ; one case bad corneal ulcer, cauterized with carbolic acid. |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Iritis, acute kerato with hypopyon | 3 | 1 | 4 | | 32 | 44 | 39 | ²⁰ / ₂₀₀ | Heat atrop.; in worse cases paracentesis and pyoktanin | 1 worse in 7 days; 1 cured in 129 days | Cured one case; worse 1 case | |
| Iritis, acute kerato with nebulæ | 1 | | | 1 | | 47 | | ²⁰ / ₁₀₀ | Atropine, heat and yel. ox. salve | 129 days | Improved | V.= ²⁰ / ₃₀ . |
| Mydriasis, accidental atropine | 3 | 3 | 5 | 1 | 20 | 40 | 28 | ²⁰ / ₂₀ | Eserine in some; in some none | | | |
| Occlusion of pupil | 1 | 10 | 4 | 7 | 16 | 53 | 25 | ²⁰ / ₁₀₀ | Iridectomy in 2 cases | 1 25 and 1 55 days | Improved three cases | V.= ²⁰ / ₄₀ . |
| | | | | | | | | | Iridectomy and extracapsular | 30 days | | |
| Occlusion of pupil secondary cataract and glaucoma | 1 | | 1 | | | 39 | | | l. p. Iridectomy | 87 days | Not improved | |
| Prolapse of iris | 1 | 1 | 2 | | 13 | 25 | | | l. p. Snipping off | | | |
| Synechia posterior (old) | 4 | 5 | 3 | 6 | 6 | 43 | 23 | ²⁰ / ₃₀ | l. p. No further record | No further record | | |
| Total affections of iris. | 157 | 125 | 190 | 92 | | | | | | | | |
| Total affections of ciliary body. | 8 | 9 | 12 | 5 | | | | | | | | |
| Total affections of ciliary body and iris. | 165 | 134 | 202 | 97 | | | | | | | | |

Percentage of Females=32+%.
Percentage of Negroes=45+%.
[Tables to be Concluded.]

SOCIETY PROCEEDINGS.

ABSTRACTED REPORT OF THE PROCEEDINGS OF THE AMERICAN OPHTHALMOLOGICAL SO- CIETY, IN SESSION AT THE PEQUOT HOUSE, NEW LONDON, CON., JULY 15 AND 16, 1896.

The meetings were presided over by DR. GEO. C. HARLAN, of Philadelphia.

Memorials were read on the deaths of Drs. Williams, Heyl and J. F. Noyes.

The following papers were read and discussed :

"The Course and Prognosis of Malignant Orbital Tumors, as Influenced by Surgical Operations for Their Removal." DR. C. S. BULL, New York.

DR. BULL's conclusions were: 1. The prognosis of all forms of malignant orbital tumors, whether primary or secondary, is unfavorable; and if the tumor be primarily in one or more of the deep facial bones or their sinuses, the prognosis is positively bad.

2. Except in the case of encapsulated tumors of the orbit, surgical interference is almost invariably followed by a return of the tumor and the growth of the secondary tumor is more rapid than that of the primary lesion. With each succeeding operation, the period of quiescence in the return of the tumor grows shorter, and the rapidity of the growth increases.

3. The patient's family, and in certain cases the patient himself, should in the beginning be told of the serious nature of the trouble and be warned that complete removal of all the disease germs is a well-nigh hopeless task. The burden of the decision as to surgical interference must rest upon the shoulders of the patient.

4. Repeated operations in these cases undoubtedly shorten the life of the patient. While it is therefore our duty

to operate in all cases, in order to relieve severe, or unbearable pain, we should be slow to operate merely for the sake of relieving temporarily physical deformity, especially if we are convinced that by so doing we shorten the life of the patient, even if that shortened life is rendered more bearable to the patient.

Discussion:

DR. H. KNAPP, of New York, fully endorsed the prognosis given except as it related to tumors of the optic nerve and of the lachrymal gland. He stated that the latter were not primarily very malignant and that no relapse may occur for many years.

DR. GRUENING, of New York, endorsed this opinion.

Cases were reported by DR. C. J. KIPP, of Newark, and DR. W. B. JOHNSON, of Paterson, in which long periods had elapsed before any recurrence of the tumor.

"Tumor of the Optic Nerve in a Child aged Three Years and a Half." DR. S. D. RISLEY, Philadelphia.

Mary B., aged 3, small, badly nourished child, brought to the hospital because of swelling of right eyelids which began three years before. Lids were œdematous and discolored and together with the dropsical conjunctiva completely concealed the cornea. The conjunctiva had to be incised twice and hot compresses used for several days before satisfactory study of the cornea could be made. This tissue was found steamy, the eyeball hard, the pupil large and a yellowish reflex from the interior of the eye was visible. It was regarded as a malignant intra-ocular growth and enucleation advised. After two days in the hospital the hardness of the eyeball, œdema, chemosis and exophthalmus had so far disappeared that the operation was deferred and in two weeks the child sent to its home, but kept under observation at the clinic. In two weeks the increased tension returned and the lens was pressed forward into the anterior chamber. The eyeball was then enucleated. The optic nerve was lost in a neoplasm which filled the apex of the orbit and closely invested the posterior surface of the globe. The eyeball and tumor were preserved in formalin and on subsequent section the tumor was found to be a gliosarcoma, which had apparently begun in the optic nerve, and

penetrated into the eyeball, filling its posterior two-thirds. The choroid had entirely disappeared.

"A Case of Osteo-Sarcoma of the Supra-Orbital Margin and Other Parts of the Skull." DR. H. KNAPP, New York.

The patient was a man aged 63. Two months ago a swelling appeared at the outer half of the brow, accompanied by protrusion of the eye forward and downward, and stupor. The swelling was about 2.5 cm. in diameter, the border presenting a hard ridge continuous with the surrounding bone, the center slightly depressed and of fleshy softness. Below the superior orbital margin there was a tumor of tendinous hardness under the periosteum, extending backwards into the orbit, its posterior limit not reached on palpation. Movements of the eye good. My opinion was a periosteal sarcoma with osseous spiculæ and I advised an exploratory incision. Prognosis bad. The patient, however, sank rapidly and died four days later. At the autopsy it was found that the supra-orbital tumor had pierced the frontal bone above the brow and rested as a spherical, soft, uneven mass, the size of a walnut, on the horizontal plate, which it had also pierced and rested on the periosteum beneath. It also extended through the superior orbital fissure into the middle cranial fossa. Independent of this tumor in the anterior part of the skull, there was another larger one, of the same kind, springing from the lateral portion of the superior surface of the petrous bone, involving in its growth the adjacent part of the cerebellum. Still another similar mass was found to have corroded the right parietal bone near the vertex. Microscopically all these tumors exhibited the uniform picture of a large round-cell sarcoma.

"A Case of Tuberculosis of the Conjunctiva, Probably Primary, Followed by General Infection and Death." DR. F. E. CHENEY, Boston.

The primary lesion appeared on the conjunctival surface of the left upper lid and presented the typical appearances. Tubercle bacilli were found on microscopic examination. The glands in front of the ear were affected when first seen. Frequent examination of the chest failed to elicit any trouble in the lungs. It disappeared from the clinic on May 26, and on July 4 died of general tuberculosis. The main trouble just preceding her death seemed to be with the throat.

"A Case of Peculiar Growth at the Inner Canthus." DR. A. A. HUBBELL, Buffalo.

The patient was a child of three months and was born with the growth on the right eye. The growth was round, semi-solid, non-fluctuating and was covered with normal skin. It was about three-fourths of an inch in diameter and had a large pedicle by which it was attached to the inner extremity of the edge of the lower lid, to the inner canthus and skin over the lachrymal sac nearly to the inner extremity of the upper lid. It supplanted the caruncle and was adherent to the inner and lower part of the eyeball, its covering extending nearly to the centre of the cornea. On the eyeball this dermal covering was so changed as to resemble mucous membrane, but was opaque and whitish in color. The lower punctum and lachrymal canal were absent. During the operation of removal it was found that the pedicle contained bone which extended backward into the orbit and seemed to be attached to its inner wall. It was completely removed and the examination showed that the principle mass was entirely adipose tissue covered with skin. The bone portion was three-quarters of an inch long and one-eighth of an inch in diameter. I have not been able to find anything like it recorded.

"Diphtheritic Conjunctivitis." DR. MYLES STANDISH, Boston.

DR. STANDISH reported a number of cases of membranous conjunctivitis which had been examined bacteriologically and it was a peculiar feature that some which presented the clinical picture of diphtheria were free from the characteristic organism of that disease, and others which appeared to be only croupous in character were found to present the Klebs-Loeffler bacilli. Some cases were due to the staphylococcus or the streptococcus and others were of mixed infection. Dr. Standish thought such examinations would call for a readjustment of our nomenclature, on bacteriologic principles.

"Notes on Keratitis Punctata Superficialis." DR. ALEX. RANDALL, Philadelphia.

DR. RANDALL reported a peculiar and persistent case. The patient came with a watering, painful eye which had been so since a slight blow received three weeks before. The condition was growing worse and sight was impaired. Only one

eye was affected and it showed marked conjunctival and circumcorneal injection. The iris was at no time affected. The cornea showed superficial infiltration at the outer lower margin. The surface was nowhere abraded, but was marked by nearly uniform pin-point elevations over the whole affected area. These points were not arranged in the usual triangular form, though they resembled those of Descemetitis. The case has not improved under any treatment and now has an appearance suggestive of coming ulceration. There is no malarial, syphilitic or other taint.

"Three Cases of Membrana Pupillaris Perseverans, in Which There is a Firm Attachment to the Lens Capsule with Opacity of This Membrane, and a Thin Layer of Underlying Lens Substance." DR. W. F. NORRIS, Philadelphia.

Of the four cases reported two were situated at the upper outer quadrant, one at the inner and one in the lower outer. In no case did the attachment to the capsule extend as far as the anterior pole of the lens. In two cases the pyramidal bands of persistent pupillary membrane were broad, of the same color of the iris itself—becoming gray only close to their insertion in the capsule, in one they were grayish with a slight tinge of brown pigment, and in one they were thin brownish shreds running to a very faint capsular spot. In two cases the bands were inserted so far in the periphery of the anterior surface of the iris that they in no wise interfered with the contraction and dilatation of the pupil, while in two some of the bands were inserted into the smaller circle of the iris and prevented full dilatation of the pupil at that point. The eyes all had hypermetropic astigmatism, two of them presenting high degrees of this defect. In one there was an apparently congenital patch of choroiditis. The fundus in the other three presented no abnormalities. The lens was in every instance transparent except at or near the point of capsular attachment, where there was slight proliferation of the anterior epithelium. The points of attachment apparently corresponded with the position of the tips of the vascular loops which in the fœtus ramify in the anterior pupillary membrane.

Discussion:

DR. F. W. ABBOTT, of Buffalo, reported a case of persistent membrane in which seven fine shreds, as delicate as silk, ex-

tended from a small spot near the anterior pole of the lens to the iris, where they were attached about midway between the edges of the iris and its circumference. The attachments were upon the posterior portion of the iris and occupied perhaps one-third of its circumference.

"Rupture of the Iris at the Pupillary Margin and in Continuity, From Contusion of the Eyeball." DR. G. C. HARLAN, Philadelphia.

DR. HARLAN reported eight cases of which six were instances of pupillary rupture and two of radiating ruptures, in the continuity of the iris. In all the cases of rupture beyond the sphincter the tear has been across the direction of the radiating fibres, which have caused the wound to open out and form a rounded perforation somewhat like an additional pupil.

"The Use of Mercury in Traumatic Irido-Choroiditis." DR. C. W. KOLLOCK, Charleston.

DR. KOLLOCK believes in the use of mercurial inunctions in such cases and reports several cases to show its beneficial action.

Discussion:

DR. MYLES STANDISH, of Boston, reported two cases of sympathetic ophthalmia which recovered with vision of 1. In both cases the recovery was attributed to the inunctions of mercury.

"A Case of Double Choked Discs, Caused by a Cystic Tumor Involving the Right Frontal Lobe of the Brain, With Autopsy." DR. H. F. HANSELL, Philadelphia.

The patient was a stout, healthy young Irish girl. Family history irrelevant. She complained of frequent severe headaches dating from exposure to the sun during the preceding summer. The R. E. V.=L. P.; L. E.= $\frac{1}{2}$. Discs enormously swollen. The case was under observation for three years. She became totally blind before death. At the autopsy a large cyst cavity was found in the right frontal lobe and a quantity of fluid escaped through the ventricles which were in communication with the cyst.

"Some Bacteriological Experiments Bearing upon the Sterilization of Instruments Used in Cataract Extraction." DR. S. THEOBALD, Baltimore.

After a series of very careful experiments Dr. Theobald concludes that bacteria are not removed by simple washing, even from the smooth surface of a cataract knife, but so far as the ordinary pyogenic organisms are concerned a very brief washing in boiling water, which is not likely to appreciably blunt their cutting edges, suffices to sterilize effectually such instruments as are commonly used in eye surgery.

"Embolism of the Central Artery. Retino-Ciliary Artery Supplying the Macula. Preservation of Central Vision." DR. O. F. WADSWORTH, Boston.

In 1890 I reported a case of plugging of the central artery of the retina in which the macular region was supplied by a retino-ciliary artery and central vision preserved. The case presented to-day offers a striking similarity in its essential features. There was the sudden onset and marked permanent concentric contraction of the field, with retention of good central vision; the white haze involving the disc and retina for a long distance but leaving the macular region and the space between it and the disc free; the evidence of disturbed circulation in the retina; the retinal ciliary supplying the macular region; but, there were differences in detail. The first case was considered as one of thrombus because no lesion of the heart or great vessels was discovered. In the second a lesion of the aortic valve gave opportunity for the formation of an embolus.

Discussion:

DR. W. P. MITTENDORF, New York, reported three cases of this kind where complete blindness was prevented by the central ciliary artery.

"Two Cases of a Rare and Generally Fatal Disease or Degeneration in Infancy, Associated with Early Blindness and the Characteristic Retinal Changes." DR. CARL KOLLER, New York.

Only nineteen cases, including these two, have been reported, and in reading the histories of all one is struck by their uniformity. The children are born of healthy parents with no history of syphilis; most of them, if not all, are Eastern Jews. Up to the third or fifth month of age the children develop well; nothing unusual is noted unless a former case in the

same family directs the attention to the ocular symptoms, which in fact seem to precede the others. Between the third and eighth month, sometimes sooner, a peculiar weakness of the muscles shows itself; the children are unable to hold their heads up, the back is weak, the muscles flabby, the reflexes present. The further development is retrograde, both as to body and mind. They do not learn to walk, present the picture of idiocy and fall into a condition of marasmus to which they succumb at the age of about two years. The eye symptoms, although not always first noticed, seem to appear in the first weeks or months of the child's life. It is not likely that the retinal changes are congenital as some observers have said. The ophthalmoscopic picture is of striking uniformity and according to all observers very similar to the changes found in embolism of the central artery. The yellow spot region is the site of a whitish opacity, the center of which shows a cherry-red spot. The discs are yellowish or grayish but otherwise look normal and well defined; later on atrophy develops. In some cases there is nystagmus. The affection is a family disease, the nineteen cases reported having occurred in ten families. So far only three autopsies have been held. In these changes were found in the layer of large pyramidal cells in the cortex of the brain which seem to be due to arrested development. One observer found descending degeneration in the cervical part of the cord. No satisfactory examination of the eyes has been made.

DR. KOLLER then gives in detail his two cases and concludes that the anatomical substratum of the affection is most likely a degenerative process in the cortex of the brain and in the retina. From the clinical course of the disease, the original healthy condition of the child, the consequent development of the marasmus and the characteristic changes in the eyes we must conclude that we have to deal less with a condition of arrested development than with a progressive morbid process in the nervous system.

Observations.

DR. LEVINE had seen three cases, all in Hebrews. His type of examination of the macula in every child brought forth some trouble or defective sight.

"Angioid Streaks in the Retina." DR. G. E. DE SCHWEINITZ, Philadelphia.

DR. DE SCHWEINITZ reports two cases showing the characteristic appearance of these streaks and remarks that the interesting point in connection with these sketches is that they demonstrate, from the ophthalmoscopic standpoint, at least, the undoubted hæmorrhagic nature of the lesions, which may be traced from their origin in the hæmorrhagic metamorphosis through the stage in which the formed striæ, still greatly hæmorrhagic in nature, are disposed in characteristic and branching lines, to their later development into true pigment streaks and ridges. Dr. De Schweinitz made a careful examination of this patient's blood and found that the retinal hæmorrhages were probably not the result of any general blood dyscrasia.

Discussion:

DR. KNAPP, who gave this name of angioid streaks to the condition described, presented some pictures of its characteristic appearances and said that he had noticed their direct connection with a hæmorrhage and had in fact practically observed the gradual development of the streaks while the hæmorrhage was undergoing absorption.

"The Management of Glaucoma" DR. S. O. RICHEY, Washington.

I may state that I have never seen a case of glaucoma, acute or chronic, that did not have a history of gout, inherited or acquired; or show sooner or later the ordinary symptoms or developments of gout, except a few cases caused by syphilis, the cause in such cases being clearly indicated by the history. After considering the conditions which produce or exist with a glaucomatous attack, Dr. Richey suggests the following treatment: In acute glaucoma the general hot bath, the administration of colchicine and the use of eserine with taxis, believing that this will often obviate an iridectomy. In chronic glaucoma frequent hot baths, weak eserine solution, daily taxis, the administration of a mixture of sodium salicylate ammonia and taraxacum and careful attention to the diet and condition of the intestinal tract.

FRENCH OPHTHALMOLOGICAL SOCIETY.

The 14th session of the French Ophthalmological Society, which was held in Paris in May, brought together not only the leading practitioners in France, but representatives from Switzerland, England and Spain in sufficient numbers to warrant the name which the meetings took of an ophthalmological congress. The sessions lasted from the 4th to the 7th of May, each day's work being carried out according to the program which had been arranged a month or more previously.

In the following very brief résumé of the transactions it is only possible to give a glimpse of the different subjects presented. The Society has an excellent rule which requires every paper and a written abstract of all discussions to be in the hands of the Secretary before the final adjournment. As a result the manuscripts are at once ready for the press, and we may expect the publication at an early date.

The first paper and the one to which the attention of the Society had been previously called by a special circular, was the report of Meyer, of Paris, on "Binocular Vision—Its Loss and Its Re-establishment." He had been designated to report on this subject the year before as one of a committee. As Javal had also furnished original data which he had recently collected concerning the subject, and as extended references were made to these, the report could be considered a digest of combined effort. It is too long and exhaustive for even the briefest review here, but it has already been published, and, together with the discussion which followed by Landolt, Raymond, of Turin, Parinaud and others is well worth careful perusal.

In the papers which followed TROUSSEAU described what he call a "fluxion" of the conjunctiva, that is, a rarer form of the muco-purulent conjunctivitis occurring in individuals of gouty diathesis, the disease being characterized by the suddenness of its onset, the severity of the objective symptoms and also the regularity with which the symptoms subsided in the case which had come under his observation.

HOWE, of Buffalo, U. S. A., called attention to the law which existed in several of the United States for the prevention of blindness from ophthalmia neonatorum. Data were

given concerning blindness in France and the evident advantage which would follow if a similar law were enacted there. It appears from the best authorities that there are at the least calculation 11,500 persons in France blind from this disease, whereas under some strict law the number might ultimately not exceed three or four hundred. The paper was discussed by Abadie, Terson, de Wecker, and others, and before the adjournment of the Congress a committee was appointed for proposing to the Chamber of Deputies the enactment of a similar law.

DARIER, of Paris, proposed a new method for puncturing the cornea when making iridectomy, doing this by means of two iridectomy knives approaching each other at an angle instead of using one as is ordinarily done. This seemed, however, to be of but doubtful advantage to those who discussed the paper.

VIGNES, of Paris, reported the results of experiences to determine the comparative value of different forms of the iodides with each other and with mercurials in the treatment of choroiditis. The evidence rather tended to show that sub-conjunctival injection of a solution of one per cent. of iodide of potash was of real advantage in the treatment of disseminated choroiditis and likewise in irido-choroiditis, particularly when of rheumatic origin. Exact observations tend to show that the iodide of potash taken internally, even as much as four grams at the dose, did not, on the other hand, produce any real effect which could be counted upon. Those who are interested in this important line of study will find the paper full of suggestive and important facts.

On the second day VACHER, of Orleans, and PFLUEGER, of Berne, presented interesting communications, both relating to the removal of the lens as a prophylactic measure in cases of progressive myopia. In America, in England and to a great extent in Germany, the removal of the transparent lens under such circumstances is considered rather dangerous and of questionable utility. Evidently, however, our confrères in France are of rather a different opinion, the procedure being by no means infrequent and the results such as to cause some surprise. In early life the rupture of the capsule with the needle produces a soft cataract which either absorbs of its

own accord, or the process is hastened by puncture or occasionally by suction. The communication of Pflüger in this regard was particularly instructive.

PLETTINCK-BAUCHAU, of Bruges, discussed Galezowski's method of extraction without iridectomy, a procedure which seems at best of rather doubtful advantage.

NUEL, of Liège, reviewed the different methods of preventing prolapse of the iris in simple extraction, and PUECH, of Bordeaux the treatment of traumatic cataract.

GALEZOWSKI, of Paris, proposed a plan for the operation of secondary cataracts, this being done by perforating the cornea on either side, it might be called a form of double iridectomy, decidedly ingenious as an attempt to obviate the traction made on the ciliary process.

BOURGEOIS, of Rheims, presented a special instrument for accomplishing the same purpose.

ARMAGNAC, of Bordeaux, MITVALSKY, of Prague, and DE WECKER, of Paris, discussed various phases of tuberculosis of the globe.

ANTONELLI, of Naples, had an excellent paper on the flat, diffuse and symmetrical lipoma of the lids. The communication was accompanied by drawings, by sections, and by a complete study of the pathology of the rare and interesting affections.

This session was closed by a paper from PARENTEAU, of Paris, on cysts and gummata of the lids, in which he considered the question of differential diagnosis and treatment.

The session of the 3d day was opened by the report of a committee on the ophthalmological geography of trachoma. This was presented by CHIBRET, of Clermont, and showed a careful study of the subject. The data were obtained not simply by the writer, but through letters of inquiry sent by him to practitioners in nearly every country. The replies had been tabulated and arranged with such care as to make the communication well worth careful perusal by any one interested in this phase of the subject. Very briefly, the conclusions were

As to bacteriological origin :

No micro-organism has yet been discovered which can be considered pathognomonic of trachoma.

There is a close resemblance between the lesions of the conjunctivæ and that of the cornea, and the two may be really identical. In certain cases the lesions of the cornea may be really identical with those of the conjunctivæ.

Different forms of trachoma may exist simultaneously in the same individual.

Race is an important factor in the causation of trachoma. A large number of cases of trachoma in the white race show that they are not due to the same cause as the trachoma of the yellow race.

Occupation appears to be a factor in the causation of trachoma. Bad sanitary surroundings, and the use of unclean water, as does lymphatic disease.

Meteorological condition, atmospheric pressure, temperature, etc., are of undoubted importance in the causation of trachoma.

A high altitude with a certain amount of moisture is rather unfavorable for the development of trachoma, and in the mountains of Switzerland it is comparatively unknown. Patients going there tend to make rapid recovery, while apparently corresponding altitudes in the dry air of Colorado have but little effect upon the disease.

Certain localities along the sea appear to give also partial immunity.

This communication was discussed by members from several different countries, the sentiment in general being in accord with the conclusions arrived at in the report.

TRUC-ET-VILLARD, of Montpellier, described the methods of operation for entropion similar to that by the Jaesche-Arlt operation, giving the results as observed some months or years after the operation, these being in general very favorable.

SAUVINEAU, of Paris, considered that repeated attacks of keratitis were often due to a dakryocystitis, and called attention to the necessity of investigating the lachrymal canal in all cases of recurrent keratitis.

The session of the fourth day was opened with a paper by SULZER, of Geneva, giving results of ophthalmometric measures of twelve hundred eyes. The most interesting portion of the paper related to the data showing that while the refractive value of the crystalline varies but little, there are undoubtedly

decided variations in the antero-posterior diameter of the ametropic eye.

MORAX, of Paris, reported an interesting case of epithelioma extending to the sphenoidal sinus, giving rise to ocular symptoms. The autopsy revealed the real cause of the difficulty, and there was an interesting discussion as to the symptoms which might be expected from similar difficulties.

TERSON, of Paris, called attention to the frequency with which syphilitic gummata appeared in the ciliary region. To one unfamiliar with the literature of this subject it was surprising to see how nearly such tumors resemble melanotic growths, the conclusion being readily drawn that until the diagnosis of syphilis could be entirely excluded it was unwise to proceed hastily with operative measures.

LAGRANGE, of Bordeaux, gave the results of a study of metastatic affections of microbic origin. The writer reviewed quite exhaustively the literature of the subject, showed the frequency with which this appeared to occur, and gave an example in which the difficulty occurred in the course of a general infectious disease in a child two years old. The ophthalmia was accompanied with a very abundant exudate filling the entire vitreous humor, and presented an appearance of retinal glioma. Histological examination showed that there existed a muco-degeneration of the ganglion cells of the retina, of the endothelium of the choroidal vessels, and even of the outer portions of the eye. In spite of this testimony the bacteriological examination failed to show the existence of any microbes in the globe.

TERSON, of Paris, gave a clinical history of a case which was similar to a pseudo-glioma and resembled glioma proper, not only in the general appearance, but even to the point of presenting distinct vessels extending into the vitreous. Under such circumstances, of course, the difficulty of diagnosis is greatly increased.

The discussion called forth by this paper was more interesting than usual. A number took part in it, and LAGRANGE was particularly forcible in stating that he was accustomed not to make enucleation until absolutely forced to do so by the severity of the symptoms, considering the operation rather as the last than the first resort. As a result of this practice he has had the pleasure of finding that some seven or eight of the

cases which he supposed to be cases of glioma proved to be pseudo-glioma, the patients retaining their own eyes, even though sightless, instead of being forced to use an artificial one. When the almost invariably fatal result of this disease is considered, it becomes a serious question whether we are warranted in making enucleation in as early a stage as is usually recommended.

On the fifth day the first paper was by FAGO, of Amiens, on "Hydatic Cysts of the Orbit," interesting not only by their rarity, but also on account of the errors in diagnosis which are apt to be made. The writer reported a case of this sort in which various forms of treatment had been adopted, and, finally, puncture and injection of sublimate 1 to 1000. With this, the result was eminently satisfactory, the history of the case indicating the treatment to be adopted in all of these classes.

ABADIE and TERSON added to the discussion by giving the results which they had also observed in this class of cases.

DOR, of Lyon, brought up the well-worn question of detached retina. His preference was for the application of Heurteloup leech, touching the sclerotic with the cautery, injection of a concentrated salt solution, twenty to thirty per cent., underneath the conjunctiva or underneath the capsule of Tenon, and, with all, complete rest in bed. Combining these varieties of treatment he reported fifteen cases treated during two years, in ten of which there was a partial restoration of the retina to its former position. In nine the improvement was very marked, in one case there was a return of detachment after seven months, and five cases could be considered unsuccessful. In one of the fifteen the restoration of vision was complete, even to the return to the normal field.

DOR did not specify upon which one of these factors in the treatment he laid the most stress, nor was it possible to draw any conclusion from the cases as given.

In the discussion of this paper CHIBRET mentioned having injected the vitreous of a rabbit into the human vitreous after draining out the fluid which lay beneath the detached retina. He found it could be done without setting up any great reaction, but the result was entirely negative.

Electrolysis came in for its usual share of discussion by TERSON and DE WECKER, but the cases reported were not encouraging as to the further results to be obtained from it.

JOCQS, of Paris, on "The Pathogenesis and Treatment of Cicatricial Ectropion," recommended an extended cauterization of the conjunctiva when the ectropion was in an advanced stage; in certain other forms in which this variety of ectropion was but slight, astringents were found to be of decided advantage. The results given were apparently even better than those which Kalt reported in the same connection, he having given preference to the removal of a triangular piece of the conjunctiva.

TRUC, of Montpellier, had quite an exhaustive paper on "Sympathetic Glaucoma and the Influence of Enucleation and of Optico-Ciliary Neurotomy of One Glaucomatous Eye, on Another With Incipient Glaucoma." Ten cases were reported and the conclusions drawn from these and from other facts were that such operations on an eye partly affected, increased the rapidity with which the process advanced in the other.

The paper was discussed by several, DE WECKER, DARIER and ABADIE bearing testimony in the same direction.

ABADIE, of Paris, called attention to the different varieties of chronic glaucoma and their treatment. An attempt was made to classify those in which eserine would be of advantage, as distinct from those requiring operation, but the line of distinction did not seem particularly well defined, in spite of the elaborate system of classification.

PUECH, of Bordeaux, in a paper on "The Treatment of Blenorrhœa of the Sac," dwelt at considerable length on the well-known plan of applying the faradic current in the sac, describing a rather ingenious method of accomplishing this, but presented nothing new so far as the general principle of treatment was concerned.

GUIBERT, of Roche-sur-Yon reported a case of "Melanotic Sarcoma of the Lid,"

Any report of these meetings, however brief, would be incomplete without reference to the hospitalities tendered to the visitors, especially to the foreigners. Beside numerous dinners and other social attractions, special opportunities were offered for clinical observation, all of which contributed not a little to the pleasure and profit of the meetings. Our French

confrères are to be congratulated on the success of their Congress.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

EDWARD NETTLESHIP, F.R.C.S., President, in the Chair.

THURSDAY, JUNE 11, 1896.

LEUCOSARCOMA OF CHOROID.

DR. ROCKLIFFE (Hull) read notes of this case. The patient was a gentleman, aged 42, who had previously had a fall on the occiput. Three years afterwards he fancied he saw "black specks" before his eyes, but no inconvenience was remarked until nine months later, when he discovered that it was necessary either to close the left eye or to hold a book slantingly in order to read with comfort. He had a good family history, and always enjoyed good health. His vision when first seen was normal in the right eye and $\frac{6}{xxxvi}$, with + 1 D. = 4 J. in the left. Tn., pup. nat., field normal. No scotoma; color sense good; fundus normal. The above condition continued, with the exception of increase of defect of vision, for two months, when the perimeter showed a defective field, and the retina was loose around and below the Y. S. A fortnight later the retina showed marked detachment with defined margin extending from above the Y. S. downwards nearly to periphery, and almost to O. D. There was no other symptom of orbital tumor. No choroidal vessels to be seen beneath the detached retina. Tn. no tremulousness of iris. Sarcoma of the choroid was diagnosed, and immediate excision advised. This was done four months after he had first noticed defect of vision. The specimen (shown) exposed a round-celled unpigmented sarcoma, measuring 13 mm. by 4 mm., originating to the outer side of the O. D. in the deeper layers of the choroid. The author alluded to several recorded cases, and inferred that leucosarcomata of the choroid usually originated from the deeper layers of the choroid, at the posterior pole of the eye; that they were not easily diagnosed in their earlier stage; and

although the adult eye seemed to be the most common seat as in other sarcomata, the age might vary from 20 months to 70 years, and their development was usually rapid. He estimated about 1 in every 100 cases of sarcoma of the choroid was unpigmented, and that the majority proved fatal by metastasis.

MR. MARSHALL had been surprised to find leucosarcoma so common; he had found it in 22 per cent. of the cases he had examined. Messrs. Lawford and Collins had found a percentage of 11 in the cases they had collected.

MR. JOHN GRIFFITH had found among 35 cases of sarcoma of the choroid 8 cases unpigmented. He thought its origin was from the chorio-capillaris, and not from the deep layers of the choroid.

THE PRESIDENT thought the difficulty of diagnosis in this case lay in the great extent of the tumor and its want of thickness; it emphasized the importance of estimating refraction carefully in cases where the vision had undergone a change.

CATARACT EXTRACTION AND GOUT.

DR. ROCKLIFFE related this case. The patient six hours after the operation had alarming and copious hæmatemesis, followed on the second day by an acute attack of gout in the hands and feet, and intense chemosis of the conjunctiva on the sixth day. The patient, however, made a good recovery from the extraction, and on May 15, two months after the operation, his vision was $\frac{6}{19}$ and J. 1, and he had read the lessons in his village church the Sunday previously, with the operated eye, with the greatest ease.

THE PRESIDENT thought that an acute attack of gout following cataract extraction was not very uncommon, even among hospital patients; he had met with it several times.

MR. LANG had had about four cases where patients had had an acute joint attack just after cataract extraction; in none of them had there been any ocular manifestations of gout.

ON THE ORIGIN OF RUPTURES IN DETACHED RETINÆ.

MR. TREACHER COLLINS read a paper on this subject. He first referred to the views of Graefe and Raehlmann, that the ruptures were due to tension of the subretinal fluid, and of Leber and Nordensen, that they were produced by traction

on the retina from shrinking bands in the vitreous. He then read an account, and showed some lantern slides of two specimens, which afforded definite anatomical proof of the occasional formation of these ruptures in the way thought out by Elschnig from the appearances seen by him in two cases he had examined ophthalmoscopically. In each of the eyes described by Mr. Collins the retina was apparently completely detached and lay folded in the centre of the globe. In each he had found, however, on microscopical examination, a patch of atrophied retina intimately adherent to the choroid in the yellow spot region, and completely isolated from the rest of the retina. It would seem, therefore, in these two cases that there had first been some central retino-choroiditis which had, over a localized area, so firmly united retina and choroid, that when subsequently the former became detached, the adherent patch of it tore away and remained attached to the choroid, a hole thus being formed in the detached retina.

MR. LANG had had three cases of detachment of the retina in which there had been holes in the yellow spot region. He asked whether the adhesions occurred elsewhere than at the yellow spot; in many of the ruptures there was no loss of retina, only a rupture.

MR. COLLINS admitted that there were other ways of detachment besides the one he had described; he merely wished to give this anatomical evidence in support of the theory of Elschnig.

CYST OF ORBIT.

This case was read by MR. DOYNE for MR. W. E. CANT, of Jerusalem. The patient, a man, came to the British Ophthalmic Hospital, Jerusalem, with proptosis. Vision was not much impaired. There was a firm solid substance to be felt in the seat of the lachrymal gland, and deeper than this a fluid tumor was felt occupying the orbit and passing through the bone to the temporal fossa, so that the eyeball became more prominent with the movements of the jaw. The tumor was incised, and found to be a cyst lying beneath the periosteum in the outer wall of the orbit; the bone between it and the temporal fossa had been absorbed. After considerable delay the cavity granulated up.

DR. ARGYLL ROBERTSON said that dermoid cysts of the

orbit adherent to the bone often caused greatly difficulty. It had been suggested to him by Dr. Robertson, of Singapore, to make a free incision into them, evacuate their contents, and insert a small piece of lunar caustic. By this means after a few days he had found the cyst come away entire.

ACQUIRED NYSTAGMUS IN OTHER OCCUPATIONS THAN THAT OF COAL MINING, WITH CASES AND REMARKS.

This paper was read by Mr. SIMEON SNELL, of Sheffield. The labor bestowed in recent years on the investigation of the etiology of minors' nystagmus, was bearing fruit in demonstrating the existence of a similar occupation neurosis in the workers in the other employments than that of coal mining. The constrained position in which the collier worked would, perhaps, remain *par excellence* the most conducive to the production, in frequency and severity, of acquired nystagmus, but the case related showed that nystagmus and weariness of the ocular elevators were already to be found in a variety of occupations. He referred to the interesting historical fact that Michael Angelo suffered in his eyes from painting the vault of the Sistine Chapel, and he wrote a sonnet which Mr. Snell quoted, describing the constrained attitude he was compelled to occupy at his work. Vasari, the painter's biographer, suffered in a similar manner from painting the Medicean Palace. Mr. Snell mentioned that since recording his case of nystagmus in a compositor in 1891, 12 other cases, 5 of them compositors, had come under his observation. Three cases had been communicated to him by Mr. Priestley Smith, and 3 by Dr. Simons (Merthyr Tydvil), and Nieden had recorded an instance of acquired nystagmus in a plank cutter. The total number of cases referred to in the paper was 19, and comprised 6 compositors, 2 metal rollers, a platelayer, a plank cutter, a saw maker, a sanitary tube maker, a fitter, an iron-founder, a worker in a "cage" at a mine, 2 employees at a glass factory, a youth engaged at a confectionery warehouse, and a man employed at the screens at the surface of a coal mine. They varied much in degree, and in some there was more weariness of the ocular elevators than very noticeable nystagmus; but it was held that, as in the case of miners, the oscillations would have been more marked if the examinations had been made

when the patients had been at work for some time. Generally speaking, the nystagmus was less marked than that met with in miners. Mr. Snell thought that attention having been drawn to the matter, nystagmus and strain or weariness in the elevators would be more widely recognized as caused by different employments than was the case at present. The plan of investigation advocated was to get the patient to place himself in the position in which he worked, or better to see the patient actually at his employment. In conclusion, Mr. Snell remarked that he thought a main factor in the causation of "Academy headache" was the wearisome induced in the ocular muscles by turning the gaze so frequently above the horizontal line. This could be compensated for by a backward movement of the head.

CARD SPECIMENS.

The following were shown: MR. SECKER WALKER, (1) Tumor of the Optic Nerve; (2) Cysticercus of Conjunctiva. DR. BELL TAYLOR, Cases of Cataract Extirpation. MR. SILCOCK, Lymphangioma of Orbit. MR. LAWFORD, Pigmentation of Conjunctiva. MR. MARCUS GUNN, Acute Bullous Eruption With Associated Affection of the Conjunctiva. MR. JULER, Macroblepharon. MR. HOLMES SPICER, Acute Double Acute Neuritis.

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ORIGINAL ARTICLES.

THE RACIAL AND GEOGRAPHIC DISTRIBUTION OF TRACHOMA IN THE UNITED STATES OF AMERICA.

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At the meeting of the International Medical Congress in Berlin trachoma came in for a considerable amount of discussion. The question of race was presented, principally by Dr. Chibret, of Clermont-Ferrand, France, and myself, Chibret pointing out that the pure Celt was to an extent immune and I that the negro in the United States was practically exempt. It was then under discussion to form an International Committee to report on the racial and geographic distribution of trachoma, but under the rules of the Congress it was not found possible. A collection of statistics and opinions, however, was informally decided upon and last year Dr. Chibret was appointed Chairman of a Committee by the French Society of Ophthalmologists to report on the subject at its meeting in May, 1896. Dr. Chibret asked me to coöperate with him and furnish data from the United States. The following is a copy of the report sent to him and which will be published in full in the Transactions of the Society.

In collecting these statistics and opinions respecting the geographic distribution and the influence of race upon the development of trachoma in the United States, I addressed

letters of inquiry to gentlemen of known experience and judgment residing in various sections of the country.

To these letters thirteen replies of greater or less fullness were received, which will be given in more or less detail in a subsequent part of this report. In summarizing the results obtained from an examination of these replies, we shall take the points under discussion seriatim:

1. All recognize the existence of a follicular conjunctivitis as distinct from true trachoma, though many acknowledge the difficulty of making a differential diagnosis in the earlier stages of the disease; and for this reason, no doubt, the percentage of trachoma in general is higher than it should be.

Andrews, of New York, while holding that pathologically and histologically there is no distinction between follicular conjunctivitis and true trachoma, is yet forced to admit a difference in their clinical course.

All who express an opinion recognize in trachoma a disease whose final termination is a destruction, to a greater or less extent, of the conjunctival tissue, with cicatricial contraction, leading to entropion.

2. As to contagion, opinions differ, though many are inclined to question its virulency. Some state that they have no knowledge of the direct transference of the disease from one person to another, and that it is not usual for more than one member of the same family to be affected with the disease at the same time, and that sometimes only one eye is attacked.

Others state in a general way that they believe the disease to be contagious, and two report a direct infection of an eye by the material expressed from a trachomatous conjunctiva by the forceps during the operation of "squeezing." These experiences while seeming to favor the contagiousness of trachoma, are not by any means conclusive; for while the discharge from the conjunctiva of an eye suffering from trachoma may be, and in certain stages of the affection usually is infectious to a degree, the diseased process following the infection is not necessarily trachoma. The infecting material produces an inflammation of the conjunctiva, and this conjunctivitis may lead to the development of trachoma in an eye predisposed to it. Usually the disease remains a follicular or a simple conjunctivitis.

The idea of the contagiousness of trachoma became firmly

impressed upon the professional mind when all forms of chronic conjunctivitis were classed as trachoma, and like all such accepted notions is not easy to eradicate. To establish the essential contagiousness of trachoma, as such, it is necessary to discover and isolate its peculiar microbe, and produce the disease in a sound conjunctiva. This has not been done in a manner satisfactory to the majority of investigators.

Moreover, the fact that the disease is not always most rife or pernicious in the over-crowded habitations of cities, but occurs with equal virulency in sparsely populated country districts and mountain regions (Ayres, Ray), would indicate that pure contagion plays an unimportant rôle in the development and spread of the disease. The statement that the disease is particularly rife in schools and asylums is not by any means universally true; and when such is proved to be the case, we should not attach all the blame to contagion.

3. The cosmopolitan population of the United States furnishes a fine field for studying the influence of race in the origin and propagation of trachoma.

There is no white race represented to any considerable extent in the United States, which is not reported by some one as liable to a greater or less degree. The Jews, the Irish, the Italians, seem to be the most affected. The Scandinavians also suffer, and the Chinese have the disease here as well as in China. The North American Indian,¹ I learn from other sources not comprehended in this report, is greatly afflicted; and I have myself, seen severe cases of the disease among them. The native "American"—that is, those born in this country, but whose pedigree is not known and which may be and usually is very heterogeneous, are by no means exempt. It is most interesting to note, in this connection, that the severe forms of trachoma in Kentucky and West Virginia, reported by Ayres and Ray, are among a population as purely American as any we have.

The only race among us which enjoys a practical immunity, is the negro. Callan (New York) does not recall a case

¹Dr. Chibret, in the report made to the French Society of which this paper is a part, states on the authority of a Canadian oculist, that the Iroquois, Hurons, Mic-Macs, Chippewas, Cris Santeux, etc., in Canada are absolutely immune against trachoma. This broad and sweeping statement I am forced to question, certainly as regards any of those tribes in the United States. I am in pursuit of further information on this subject.

among the negroes. Savage (Nashville) in a population 30 per cent. of which are negroes, has never seen a case among them, though it is very common among the whites of that section. Ray (Louisville) sees 800 to 1200 eye cases among the negroes annually, and not one of trachoma. It is common among the whites of that city. Phillips (Savannah, Ga.) has seen one case in the negro. White (Richmond, Va.), among a large negro population, has 43 cases of trachoma in 11,000 eye cases, one of which is a negro. Randolph (Baltimore), in the midst of a considerable negro population, no cases among the negroes. Ayres (Cincinnati) one case in the negro. Bruns (New Orleans, La.), in 1290 cases of conjunctival diseases (26.75 per cent. negroes), has 84 cases of trachoma in the white and 8 in the negro. As Bruns states that it is often difficult to make a clear differential diagnosis in the earlier stages, there is a probability of at least some of these 8 being follicular conjunctivitis.

In my own experience in Washington with a population about one-third of negro blood, and in a clinic nearly two-thirds of which are "colored," during a period of more than fifteen years, and with about 10,000 "colored" eye cases, I have seen not more than 6 negroes in which there was a suspicion even, of trachoma; and I have never seen a case of entropion in that race.

There seems, therefore, to be a perfect unanimity of opinion as to the practical immunity of the negro in the United States from trachoma. This coincides with the statements made by me in 1876, when I first called attention to the fact in a paper read before the International Ophthalmological Congress held in that year in New York, and reiterated on various occasions since.

The negro as a race still occupies an inferior position in this country, and the greater part of them live in crowded quarters and among unhygienic surroundings. They suffer much from tubercular and scrofulous diseases; and strumous affections of the conjunctiva and cornea form a large percentage of their eye troubles.

4. It will be gathered from a reading of these reports, that altitude has but little modifying influence upon the disease. In fact some of the most virulent cases are seen among the inhabitants of the mountains of West Virginia (Ayres;

also oral communication from Dr. Belt, now of Washington). Rivers, of Colorado, finds the disease at 5,000 feet, among railroad laborers; and even at an altitude of 10,000 feet at Leadville, Colorado. I have myself seen it among the whites of East Tennessee, more than 1,000 feet above the sea level.

Latitude seems to have but little influence also. It is no more common at Portland, Maine, or Portland, Oregon, than Savannah, Georgia, or New Orleans, Louisiana. The whites of the Middle States, of Tennessee, Kentucky and West Virginia are much more affected it seems, than either the extremes of North or South. Why these should be so severely affected is not at all clear. They are far inland and unaffected by the tide of immigration pouring into our seaport towns; and the foreign element which is most affected—the Irish, Jews, and Italians, form but an insignificant part of the population. Some parts of this territory are malarious, but others are mountainous and free from this miasm.

It would seem then, that trachoma is not to be found most commonly or in its most virulent forms, solely in the crowded precincts of cities, where contagion could have its fullest influence, nor always at low altitudes, nor in an equal degree among the poor and filthy of all races. In other words, environment plays a much less powerful rôle than has hitherto been supposed. Undoubtedly an inflammation of the conjunctiva of any kind will facilitate an outbreak of trachoma in an eye predisposed to the disease, in the same way that an attack of pneumonia will easily lead to an outbreak of tuberculosis in one with a tendency to that disease; but as we sift the evidence more and more carefully, we find that the idiosyncrasy of the individual is the important factor in the development of the disease.

In those possessed of a predisposition to trachoma, however, improper living and bad hygienic surroundings are, without question, large and most active elements in causing an outbreak of the affection; and in our therapeutics this should have a more prominent influence than it has hitherto had with the common acceptance of the disease as a mere local affection, instead of, as we believe, the manifestation of a dyscrasia.

DR. J. A. ANDREWS, New York City.—I am very sorry that I can not send you a satisfactory reply to your letter of

inquiry concerning trachoma. There is no subject in ophthalmology (with the exception, perhaps, of gonorrhœal ophthalmia) to which I have devoted more time and study than to that of trachoma, and I am very sorry to say that the results have been so unsatisfactory to myself.

I hold substantially the same views in regard to trachoma as those expressed in a rather lengthy article which I published in the *Archives of Medicine* (edited by E. C. Seguin), Vol. XI, June, 1884. I stated there that there was no justification upon pathologico-anatomical grounds for distinguishing trachoma from follicular conjunctivitis. In fact I described trachoma as a follicular disease of the conjunctiva. But I do recognize a *clinical* difference between follicular and trachomatous conjunctivitis.

The first nine volumes of my case book were destroyed by fire a few years ago; and as they contained the statistics bearing on the nationality of my cases of trachoma collected from my hospital experience, I can not send you such data as they would supply.

I have observed trachoma, and frequently, among the Irish. This simply means that the nationality of my patients at the Charity Hospital (where I have worked for thirteen years) is chiefly Irish.

As to altitude, you know it is said that trachoma does not originate in Switzerland. This immunity should, perhaps, be referred to climatic rather than mountainous conditions of the country, because the disease does spread in mountainous regions.

Last year I observed trachoma in a negro. I confirmed the diagnosis by examination of the tissues (histological examination). The patient was a full-blooded negro; his occupation that of a domestic. I feel pretty sure that the disease is contagious. I have seen the disease spread to every member of a family; but I have more frequently seen it in only one member of a family.

I saw a good deal of trachoma in China several years ago. It is a common disease among the Chinese.

DR. S. C. AYRES, Cincinnati, Ohio.—I am not one of those who class everything under trachoma. There is a vast difference between trachoma and conj. folliculosa. I read with

much interest a few years ago your observations on trachoma in the colored race. Up to that time I had never seen a genuine case among the colored people; but since then I have seen two or three cases among them. We have but few negroes here, so that our observations can not be extensive.

I enclose the report of St. Mary's Hospital on chronic trach. conjunctivitis. I think the report is correct so far as nationality is concerned, but is somewhat misleading; for *many* of the cases were the children of Irish and German parentage, judging from the names.

The worst cases we see now come from the mountains of West Virginia and from the various parts of Kentucky. We do not see proportionately as many or as severe cases as we did fifteen or twenty years ago.

REPORT OF ST. MARY'S HOSPITAL.

| | | | | | | |
|---------------------|---|---|---|---|---|-------|
| From United States, | . | . | . | . | . | 98. |
| From Germany, | . | . | . | . | . | 11. |
| From Ireland, | . | . | . | . | . | 15. |
| From Italy, | . | . | . | . | . | 1. |
| From Austria, | . | . | . | . | . | 1. |
| | | | | | | <hr/> |
| Total, | . | . | . | . | . | 126. |

DR. HENRY DICKSON BRUNS, New Orleans, La.—In reply to your interrogatories:

1. I am one of those who "recognize a follicular conjunctivitis which does not lead to destruction of the conjunctival tissues, as distinct from chronic trachoma which always leads to such destruction to a greater or less degree and ends in the production of entropion." I am free to confess, however, that in the earlier stages I am not always certain of my diagnosis, but must wait upon the progress and effects of the disease.

2. The population of New Orleans is cosmopolitan in a very high degree.

3. We have a large French element and a still larger one of native Americans of pure French descent—our "Creoles." Then we have a large Italian population—"Dagoes," many Germans, Spaniards, Mexicans, and the usual proportion of Irish common to American cities.

4. Of racial influence, I can give, save in the case of the negro (pure or mixed blood), only my impressions. Of for-

eigners, the Italians, especially recent immigrants, present by far the largest number of cases of trachoma; the Irish come next; and the Germans next. In every instance it is in the new-comers to our country, State or city, that we see the majority of cases. Among our Creoles, trachoma is certainly rare, and it is but little prevalent among the natives of New Orleans of any descent.

During eight or nine years' service in the Charity Hospital I used to see more of trachoma than I do now; and my strong impression is that these cases used to come to us from other cities and spend the winter in our wards. In the Eye, Ear, Nose and Throat Hospital, where I am now in charge of the Eye Department, and where our service is a visiting one, only operative cases being admitted, I see few cases of the disease in question; a strong confirmation of the correctness of my impression. Of 4,160 cases recorded and tabulated during the years 1893-94, of which 1,290 were cases of conjunctival affections, there were but 92 cases of trachoma (2.2 per cent. of all cases and 7.1 per cent. of conjunctival cases). In the year 1895, of 647 cases of conjunctival affections, 39 were cases of trachoma (6 per cent. of all conjunctival cases). Twelve of these (36 7 per cent.) were Italians ("Dagoes") of the lowest type. Nearly all the cases I have seen have been among the very humblest of our population.

As to the prevalence of this malady among the Negroes or those of Negro blood, I can offer, not mere impressions, but actual figures. The immunity to trachoma enjoyed by the negro is well shown in the tabulated reports from my clinic for the years 1893, 1894 and 1895. The normal, fixed, or regular percentage of those of negro blood who attend to the Eye Clinic of the E. E. N. and T. Hospital is about 25 per cent., determined by a comparison of many thousand cases. In the years 1893-94, 4,160 cases were treated, and the percentage of those of negro blood was exactly 26.75 per cent. Of these 1,290 were conjunctival affections, with 92 cases of trachoma, 84 white and 8 of negro blood; about two-tenths per cent. of all conjunctival cases. In the year 1895 there were 647 cases of conjunctival affections with 39 cases of trachoma, 31 white and 8 of negro blood; rather more than one per cent. of all conjunctival cases (1.23 per cent.).

5. New Orleans is (about) at the sea level.

6. Most of the Irish affected with the disease are common laborers. The Italians are field hands, shoemakers and perambulating tinkers.

DR. P. A. CALLAN, New York City.—As to the question of trachoma in the negro, it is rarely to be seen in this section of the country. I have gone through the Colored Orphan Asylum in this city, and I can not recall any cases. I see that you use the term of follicular conjunctivitis, and so do I, the frog-spawn trachoma of some writers.

As to the racial distribution of trachoma; here in New York City, the Irish and the Jews are the greatest sufferers and the Germans and the Italians are coming to swell the lists; the Slavs furnish cases in proportion to their numbers. We have not very many Chinese who present themselves for treatment.

Trachoma to my mind is decidedly contagious; our orphan asylums are too much in evidence to deny that. Not infrequently one eye is little if any affected. If we admit that great improvement has taken place in the general hygiene of orphans and the sanitary condition of asylums, we are led to believe that the too great crowding causes the infection through the air in a certain number of cases.

With regard to private cases, I see very few in my office. Unfortunately trachoma belongs to the poor; I say unfortunately, for their poverty excludes proper attention to the disease. Without consulting reports, my impression is that we do not see many cases of trachoma as formerly in our clinics.

DR. F. B. EATON, Portland, Oregon.—The following gives result of examination of my case books for a period for which I have time to go over in the short time you have allowed me. Only true trachoma is recorded.

My cases are drawn from the city, Oregon and Washington. The races are American, German, Irish, Scandinavian, Jews, Italians, and Chinese, predominating in the order given. Negroes (pure and mixed) do not exist over 2,000 to 3,000 in the city. Population 86,000. In twenty years' practice have never seen a case of trachoma in pure or mixed negroes.

In the other races I have excluded all traumatic ocular diseases, all ametropia, lachrymal and muscular diseases, and

the numbers of each race given in total of diseases, include only affections of the eyeball and eyelids. My proportion of the excluded affections is about that of any other oculist in a city.

| | | | | |
|------------------------|-------|-------------------|-------|---------|
| Total No. of Americans | 144 ; | Cases of trachoma | 22 or | 15.27 % |
| “ “ “ Germans | 32 ; | “ “ “ | 2 “ | 6.20 % |
| “ “ “ Irish | 12 ; | “ “ “ | 1 “ | 8.33 % |
| “ “ “ Jews | 6 ; | “ “ “ | 1 “ | 16.60 % |
| “ “ “ Scandinav's | 8 ; | “ “ “ | 1 “ | 12.50 % |
| “ “ “ Italians | 3 ; | “ “ “ | 0 “ | 0.00 % |

These do not include my hospital cases, of which I have no record ; they have been about the same proportions.

Trachoma is proportionately frequent among the Chinese in this city, of which we have about four or five thousand. This seems due to the close, narrow quarters they occupy, generally smoky, and possibly to their diet. I have no record of Chinese cases, but have seen proportionally, many.

Altitude above the sea, 30 feet.

The dry summer season increases trachoma and intensifies it decidedly, as does high temperature. Altitude diminishes it in the Eastern part of State. (Mountains).

Have no evidence of direct transference by contagion ; have never seen two persons in the same family affected that I can remember.

The only occupations I have noticed to favor trachoma are farming, herding, and constantly attending on horses. The last appears to me to decidedly favor the disease.

DR. E. E. HOLT, Portland, Maine.—In reply I would say that I am one that recognizes follicular conjunctivitis and trachoma as two distinct diseases, but I do not have enough of either to become very familiar with them. I see cases in the Jews, Scandinavians, Irish, and the native born, the frequency being in the order named.

Our altitude is but little above the sea level. The disease seems to manifest itself more in the summer. I have no direct and positive evidence that trachoma is transferred from one person to another, but circumstances have been such as to make me believe it is transferred from one person to another. Occupation does not seem to affect it one way or the other.

DR. S. LATIMER PHILLIPS, Savannah, Ga.—In reply to your letter of January 3, 1896, I would say:

1. In my opinion there are two forms of granular conjunctivitis (*a*) acute, (*b*) chronic or true trachoma.

2. True trachoma is very rare in this section of the country, and where it is found is among the poor and uncared for. The population of Savannah is of two kinds, white with a fair sprinkling of German, Irish, Jew, Italian and Chinese; the other kind, negro and mulatto. I have seen one case of trachoma in a Chinese laundryman. In an experience of nine years' practice of ophthalmology in this section, I have only seen one case of trachoma in the negro race. As to the negroes of the Sea Islands of South Carolina, I can not tell you much. Among those who have come to Savannah for eye treatment I have not seen a case of trachoma. They are of the same race as the negroes on the mainland, but from long isolation, lasting through years, with but little if any communication with other negroes or whites, they have acquired a dialect entirely distinct from that of the negroes of other sections, in fact almost wholly a language of their own. To the uninitiated it is indeed a strange and foreign tongue.

3. Savannah is situated on a sandy bluff forty feet above the river and gradually sloping to the East, South and West into lowlands. Owing to its situation land for suitable building sites comes high; and while we might call the city an openly built one, with its wide streets and frequent squares, still the poor are much crowded into certain localities with bad hygienic surroundings. Season, temperature and altitude have nothing to do with the frequency of trachoma in my opinion, but the hygienic surroundings everything.

4. I am not prepared to say that trachoma is non-contagious, though in my experience I have not seen it spread from one member of a family attacked to another. The cases I have seen have been isolated ones.

5. There are no occupations in which the disease is particularly prevalent.

DR. R. L. RANDOLPH, Baltimore, Md.—I look upon follicular conjunctivitis and trachoma as absolutely distinct. The variety leading to destruction of tissue, etc., is the only trachoma in my opinion.

Baltimore has a population of nearly 500,000. Of these 56,000 are Germans, 67,000 negroes, 5,000 are Russian Jews and the remainder Americans with some hundreds from a few other nationalities. The city is from fifty to seventy-five feet above sea level. I do not think that season, temperature, etc., influence the disease in any way.

I have never seen trachoma in a negro.

With few exceptions the disease is seen exclusively among Russian Jews, most of them tailors. I have seen a few cases where contagion was clearly traceable; but ordinarily the patient seen is the only one in the family attacked—that is, so far as I could learn from the patient.

DR. J. M. RAY, Louisville, Ky.—I believe in and recognize a difference between so-called “follicular trachoma” and the genuine “disease.”

I see in hospital and dispensary practice from eight to twelve hundred negroes yearly, and have never seen a case of genuine trachoma, the kind that produces trichiasis and entropion. I have seen a few cases of “follicular trachoma” in mulattoes, and one that was accompanied with a corneal ulcer that had been diagnosed as true trachoma; but I did not so consider it. The people in Kentucky are largely natives and emigrants from States farther East, especially Virginia. The foreign element is small, yet many of the Polish Jews suffer from true trachoma. Trachoma is quite a common disease. In fact the most frequent eye disease that I see with the exception of phlyctenular conjunctivitis. The natives suffer more than any other class I see because they are largely in the majority. There is prevalent through the southern and eastern part of this State a form of trachoma frequently non-inflammatory in its early stages, but eventually producing enormous thickenings of the lid, great corneal vascularity and much deformity from conjunctival cicatrization. It will often affect several members of the same family. I know of instances where the entire family, parents and three to five children, are all suffering from the sequelæ. These cases come from the poorer sections of the State and thinly settled neighborhoods, and I have several times tried to trace the source of contagion, but not with uniform success.

The Kentucky Institute for the Blind contains 139 white

and 36 negro inmates. Of these, 21, all whites, are blind from sequelæ of trachoma. Of these 21, three-fourths are from the eastern and southern parts of the State and from the country, and not from the cities or large towns. Laurel county, a very poor county, furnishes more than any other one county. This county is 1,200 feet above sea level and is a pauper county. Louisville is next in number. This city is 420 feet above sea level.

I have noticed that season favors the development of the disease. Generally in the spring I see quite a number of cases of acute and inflammatory trachoma that if left untreated lead to vascularity of cornea and ulceration. These cases have, however, been the ones that are the most amenable to proper treatment.

I know of many instances of contagion. An assistant in the clinic of a friend of mine had contracted trachoma during a crushing operation, and has suffered seriously from it. In three institutions under my care I have seen the disease develop as the result of the admission of an infected child; a number of the cases required much time and treatment to eradicate. These cases were, however, of the acute variety. In the chronic form with secretion, I believe that by wash basins and towels in the course of time it is transmitted, but not easily. I can not explain certain cases sometimes seen in which only one eye becomes diseased. I have known cases of this kind to go for ten years without the second eye becoming involved.

We have no Indians in this State, and the German population is small outside of this city. I have noticed that the class of cases brought here from the State are, as a rule, fair-complexioned, light-haired subjects, and have been raised on hog meat and cured meats, with a very small proportion of fresh vegetables and meats. —

DR. E. C. RIVERS, Denver Colorado.—I believe trachoma and follicular conjunctivitis are two distinct diseases, and my answers to your questions are entirely confined to trachoma—meaning usually a very chronic course ending in destruction more or less complete of the mucous membrane.

The altitude of Denver is 5,200 feet, but my patients come from all over Colorado, New Mexico, Wyoming, Kansas and Nebraska. Nationalities are of all kinds. I have practiced

here since 1881. Our climate is very dry and dusty and our sun shines nearly every day and is very bright.

I have for several years paid particular attention to the prevalence of trachoma to see if the general idea that altitude affected it favorably was correct. I have observed no difference in its frequency and severity here than I did in Baltimore when I was Dr. Chisolm's assistant for several years. I have seen it occur in Leadville (over 10,000 feet) in as severe a form as anywhere else, and at all other altitudes at which we have any towns.

This part of our country is sparsely settled. Our people live on ranches or at mines which are in most instances miles apart. We have no tenement dwellers; no crowding, except in railroad grading camps, and I find the proportion of trachomatous conjunctivitis, while less in proportion to all eye diseases here than in the East, still no less than our more favorable sanitary conditions would account for. And in the crowded grading camps it is just as frequent and just as severe without regard to altitude or season. I, at one time, began to keep exact dates on the subject; but the extreme uncertainty from my patients' history of where and when the trouble began discouraged me.

I find it is quite frequent among the Chinese, Italians, Jews, Americans and Scandinavians in the order given. The same order would represent the disregard of proper respect to sanitary laws. Of course I use the word American to represent the laboring classes of this country, not the so-called higher classes.

In regard to the Indian I have had no experience, but the Jesuit fathers who live among them inform me that they suffer a great deal from chronic sore eyes, due to the smoke and bad air in their tepees.

I have never seen a case in a negro (of full or mixed blood) although we have several thousand among us.

It naturally affects more than one member of a family.

In operating on a case in November, 1894 with Noyes' forceps I accidentally got some of the "juice" directly into my right eye. Ten days afterwards my right eye became very much inflamed and swollen with all the symptoms of acute trachoma. I could not see to read or operate for nearly five months. My left eye became affected three weeks after the

first. It only yielded to the daily application of one per cent. solution argent. nitric. to the eyelid. I could not examine my own conjunctivitis very closely, but I am satisfied that I had trachoma and from direct infection.

I find no occupation subjecting its followers to it except such as violate proper sanitary laws.

DR. S. G. SAVAGE, Nashville, Tennessee.—1. I recognize trachoma as distinct from follicular and papillary conjunctivitis.

2. I have never seen a case of trachoma in a pure negro, and not over three times in a mulatto. About 30 per cent. of our population is colored. We have some whites of foreign birth but not a great number. I have seen many cases of trachoma among the Irish, but only a few cases among the Jews. I have not had the opportunity to observe Italians, Scandinavians and Indians.

3. There is one orphanage in this city with 23 inmates, 17 of whom now have trachoma. There is an industrial school with more than 100 inmates, $33\frac{1}{3}$ per cent. of whom are said to have trachoma. (These I have not seen, but one of my pupils has seen them). I suppose no one doubts that trachoma is contagious.

DR. W. F. SOUTHARD, San Francisco, Cal.—The following results I give you for what they are worth. Trachoma is not a very prevalent disease with us, not sufficient to afford valuable data for scientific purposes. We have a cosmopolitan population; Americans, Irish, Germans, Chinese, Hebrews, Italians, Portuguese, Spanish, Japanese, Negroes, Scandinavians, English and Russians in about the order named.

Trachoma is not found among one class more than another unless it be among the Chinese. The Chinese appear in our clinics, but not in great numbers. Occasionally we learn of trachoma attacking each member of the family. Granular conjunctivitis is quite common. The altitude of San Francisco varies from a few feet above the sea level to several hundred feet at highest point in city limits. Temperature is very even throughout the year. During the summer months we have the trade winds which blow steadily from the ocean. All impurities are thus driven off and the air is kept fresh. In the winter we have but little wind, but enough rain-fall—averaging 24 inches—to keep the atmosphere clean. Possibly from these

causes we have never had in the posttest classes or in any year's practice here. I have traditions.

DR. JOSEPH A. WHITE said that I forgot one of those grand rules, except when the certain that we can not decide on the Nose, Ear and Throat assistants have been confounding traditions and hence put the little finger than it should be,ular like something over it.

a few things to be expected in this class all these were and were among theorems of "Kodan" as seen to be, which population here very large, we have seen cases here from a d-

distal, having been his heading, the persons, and only a statement from the year up from the show any, have been largely cases several have

cases of follicular infection. Nearly one of four of them cases in a more heavy in not only negative but even the with cases of it. The few people persons, and cases. (Person) John

CONCERNING A NEW FUNCTIONAL INFECTIOUS OF SOLID TISSUE OF VERTEBRATE MERTENS CHILDREN IN VARIOUS OCULAR DISEASES WITH CASES.

BY DR. JOSEPH A. WHITE, M.D., M.B., PH.D., PH.D., F.A.C.S.,
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CHIEF CLINICAL ASSISTANT, THE UNIVERSITY OF CALIFORNIA, AND THE
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Notwithstanding the great amount of literature dealing with sub-conjunctival infection, especially in children, and in ocular infections, that has been recorded within the past 20 years, the subject is still very unsettled, and it is still so much difference of opinion and opinion in the treatment of their various indications and in the treatment of them.

It is claimed by many that the good effects that are obtained in certain selected cases are produced by the mercury (though exceedingly small in amount) coming directly in contact with the diseased process in the eye without having to go through the whole system. This seemed very plausible at first, and especially so after Pflüger claimed to have found the drug in the tissues of eyes enucleated some time, after injections had been made. On the other hand, some competent observers have failed to confirm Pflüger's experiments. This gave rise to reasonable doubt as to the mercury alone causing the beneficial effects that had been obtained, so in certain cases simple distilled water was employed instead of the mercurial solution. The great drawback to the latter method was the severe pain that followed each injection, so a solution of sodium chloride was then tried. This gave rise to no pain and in the cases in which it was used produced fully as good results as did the mercurial solution. The fact that injections of distilled water do good but cause considerable pain and that injections of a solution of sodium chloride also act beneficially but give rise to no pain disprove the opinion that in the injections of the solution of mercuric chloride it is the action of the mercury alone that produces the good results and goes far towards proving the theory that these good results are produced by the unblocking, as it were, of the engorged and sluggish lymph channels.

The following cases taken from my private records and from the service of Dr. de Schweinitz at the Jefferson Medical College Hospital, are a few among those I have injected with the sodium chloride solution that will illustrate the above remarks. During the use of the injections no other form of medication was employed except the instillation of an atropine solution.

CASE I. *Double Syphilitic Iritis*.—A. M., male, Italian, aged 40 years, presented himself at the dispensary of the Jefferson Medical College Hospital for treatment of his "sore eyes." Examination showed a double syphilitic plastic iritis, the initial lesion having been contracted four months earlier. There were present the usual symptoms of pericorneal injection, intense pain, photophobia, lachrymation and a contracted pupil with posterior synechiæ. These symptoms had been present for four days. In the right eye the iris was attached to the lens capsule by its entire pupillary border, excepting a

very small portion in the upper and outer quadrant, this being the only part that would dilate, after the frequent instillation of an atropin solution. The media were hazy but there was an indistinct view of the fundus that showed an oval disc, rather large veins but no gross lesions. In the left eye there was also almost complete annular attachment of the iris, the condition of the media and fundus being the same as in the right eye. Vision of each eye equaled $20/_{cc}$. Instillations of atropin at frequent intervals for twenty-four hours resulted in no improvement of the pain and very limited dilatation of the pupils. An injection of mercuric chloride (1-2000) was now made beneath the conjunctiva of the right eye and injection of sodium chloride ($2/_{10}$ of 1% solution) beneath the conjunctiva of the left. On the following day the pupils were dilated *ad maximum*, the pain was gone and the patient stated that he had spent the first comfortable night for nearly a week. There was no appreciable difference in the effects of the two solutions. This treatment was followed up until he had received five injections of the mercuric chloride solution in the right eye and five injections of the sodium chloride solution in the left, the usual interval between the injections being two or three days. No other medication was employed except the instillation of the atropine solution. There had been no pain since the first injections were made, the pupils were completely dilated and it was impossible to detect the slightest difference between the effects produced by the two solutions. Vision of each eye equaled $20/_{xxx}$. There was, of course, some pigment left on the lens capsule in each eye.

CASE II. *Plastic Syphilitic Iritis*.—C. B., male, aged 35 years, applied for treatment for his sore eye which had been inflamed for two days. There were the usual symptoms, with small synechiæ up and out, of a plastic iritis in the right eye. Vision equaled $20/_{c}$. In the left eye there was a slight conjunctivitis, vision equaled $20/_{xx}$. The pain was exceedingly severe. Atropine was instilled and he was given a sub-conjunctival injection of the salt solution. On the following day he returned entirely free from pain, the pupil dilated, pericorneal injection much less and the photophobia diminished. Similar injections were made on alternate days until he had received four when the inflammation was entirely gone.

CASE III. *Rheumatic Iritis*.—H. F., male, aged 31 years, consulted me for an attack of rheumatic iritis. No specific

history could be obtained. He had had severe attacks of the same character before, each time being treated by a competent ophthalmic surgeon, who had diagnosed the condition as rheumatic iritis, and had relieved it by the use of salicylates. The pain was intense, and desiring to ascertain what effect an injection of the salt solution would have in such a case one was given at once. The next day he returned with a complete cessation of the pain, except when exposed to a bright light, the pupil fully dilated, and a marked reduction in the inflammatory condition. He was given five other injections, after which the iritis was practically well, when he was placed on the anti-rheumatic treatment.

CASE IV. *Episcleritis*.—A. D., male, aged 58 years, came for the treatment of an inflamed eye which had troubled him for six months. Examination showed an episcleritis in the left eye, the nodule being situated to the outer side of the cornea. He had taken salicylates, iodides and mercury without any appreciable improvement. There were no changes in the fundi. He was given an injection of the salt solution as near the nodule as possible. This was repeated twice at intervals of three days when the nodule and inflammatory patch had disappeared. The patient was under observation for several months after this but there was no recurrence.

CASE V. *Interstitial Keratitis*.—A. B., male, miner, aged 20 years. In each eye the cornea was markedly infiltrated, pannus was present, and no view of the fundus could be obtained. For three months he was treated with mercurials, iodides and topical applications, at the expiration of this time his eyes being much improved. He disappeared for a month when he returned with his eyes in a condition worse than before. He was then given, at varying intervals depending on the amount of reaction, seven injections of the mercurial solution in one eye and the same number of injections of the salt solution in the other eye without any improvement whatever. The mercurial solution caused him more pain when being injected than the salt solution; excepting this, there was no difference in the results. After another course of mercurials and iodides he left much improved, but before he was entirely well.

CASE VI. *Plastic Syphilitic Iritis*.—J. C., male, photographer, aged 28 years. In February of this year the patient was treated for an acute catarrhal conjunctivitis from which he recovered in a few days. In March he re-appeared with an at-

tack of plastic iritis in the right eye. After three injections of the bichloride solution the eye was again well. Two months later there was a recurrence in the same eye for which he was given three injections of the salt solution. The eye was again well and the second attack of inflammation had subsided equally as quickly from the use of the salt injections as the first did from the mercurial injections.

CASE VII. *Double Plastic Syphilitic Iritis*.—A. M., male, Italian, aged 42 years. Initial lesion four months before. Presented himself for treatment of a double iritis. In each eye there was nearly complete annular synechia. Pain was very great and no view of either fundus could be obtained. Four injections of the mercurial solution were given in one eye and the same number of the salt solution in the other, after the internal administration of mercurials and iodides for a week failed to make any improvement. For the severe pain he had received phenacetine, antipyrine, hyoscine and morphine, the latter being the only drug that gave sufficient relief to permit him to sleep. Two hours after he had received the first injections the pain had subsided in the eye that had received the salt solution, and was much less intense in the eye that had received the mercurial solution. After the four injections the inflammatory process had subsided in each eye, the pupils were round, the fundi distinctly seen and normal. Vision which equaled $\frac{10}{60}$ in each eye at the time of the first injection now equaled $\frac{20}{xxx}$.

CASE VIII. *Sub-Conjunctival Hæmorrhage*.—P. S., male, aged 30 years, came for the treatment of a large sub-conjunctival hæmorrhage of the left eye which had been produced by a blow. The hæmorrhage was about 15 mm. \times 30 mm. in extent. Knowing how long it usually took for such a hæmorrhage to disappear I tried injections of the salt solution with the hope that the alkalinity of the solution together with the opening of the lymph channels might cause it to disappear more rapidly. I was not disappointed, for after two injections the dense redness was gone though beneath the conjunctiva there remained a dirty appearance which lasted for about a week.

CASE IX. *Chronic Iritis*.—Mrs. R. C., aged 36 years. Had suffered from chronic iritis for six years during which time she had been thoroughly dosed with salicylates, iodides and mercurials. The vision was gradually growing worse at

the time she came under treatment being, with the correcting lens, for the right eye $\frac{3}{cc}$, and for the left $\frac{12}{cc}$. After trying pilocarpine sweats, in addition to the treatment she had been receiving, she was given injections of the salt solution in each eye, receiving altogether fifteen. Vision improved to $\frac{8}{cc}$ for the right and to $\frac{16}{cc}$ for the left eye. One morning in making an injection the eye was not thoroughly cocainized and the needle piercing the conjunctiva gave her some pain. After this she refused to continue the treatment.

The following conclusions seem justifiable :

1. Sub-conjunctival injections of solutions of sodium chloride produce equally as beneficial results in the treatment of ocular affections as do sub-conjunctival injections of solutions of mercuric chloride.

2. The good results obtained from sub-conjunctival injections of solutions of mercuric chloride are not due to any specific action of the minute amount of mercury that may come in contact with the inflammatory process but probably to the unblocking of the engorged lymph channels.

3. Sub-conjunctival injections of solutions of sodium chloride are of the greatest value in treating iritis and especially in checking the severe pain, relieving it, generally, in a very short time after the first injection is made.

4. Sub-conjunctival injections of solutions of sodium chloride produce less discomfort than similar injections of solutions of mercuric chloride and never cause any adhesion between the conjunctiva and sclera which so frequently follows injections of the latter.⁵

5. Sub-conjunctival injections of solutions of sodium chloride are of much value in producing the rapid absorption of sub-conjunctival hæmorrhages, which, as is well known, are removed, as a rule, only by time.

NOTE.—Recent investigations on animals' eyes by Geering, of Basel, show that in almost all cases in which there have been given sub-conjunctival injections of mercuric chloride there are found on microscopical examination numerous adhesions between the periphery of the iris and the cornea in the region of the filtration angle. In no one of his experiments did he, however, get a glaucomatous rise of tension though this possibility should be remembered. Whether sub-conjunctival injection of the salt solution will produce similar adhesions remains to be determined by further experiment.

DISEASES OF THE LENS.—237 Cases.

[Tables Concluded From August Number.]

| DIAGNOSIS. | RACE: | | SEX: | | AGE: | | VISION: | | | TREATMENT. | DURATION OF TREATMENT. | CONDITION ON DISCHARGE. | REMARKS. |
|--|-------|----|------|----|---------|----|---------|------------------|-----------------|---|--|--|--|
| | W. | N. | M. | F. | From | to | avg. | from | to | | | | |
| Aphakia, (operative) | 11 | 2 | 6 | 7 | 12 | 70 | 50 | Fng. 8 ft. | 1 ft. | Glasses | Longest 12 days | Improved | V. = Fingers 4 feet to $\frac{20}{80}$. |
| Aphakia, traumatic | 1 | | 1 | | | 47 | | $\frac{20}{200}$ | | Glasses | One day | Improved | |
| Cataract, congenital | 7 | 4 | 7 | 4 | 1 month | 23 | 54 | $\frac{20}{200}$ | l. p. | 5 cases needed; 1 double iridectomy | 2 needed cases left before treatment completed; 1, 88 days; 1, 70 and 1, 11 days Iridectomy case | Improved, six cases | |
| Cataract, pathological (secondary to iridochoroiditis) | 5 | 2 | 3 | 4 | 13 | 37 | 24 | | l. p. | 1 unsuccessful and 1 successful extraction | 57 days 15 days | Unimproved | Successful extraction failed to improve V. |
| Cataract, polar, anterior | 2 | | 2 | | 21 | 28 | | $\frac{20}{200}$ | Fng. 3 ft. | 1 double iridectomy | | R. lens became opaque, L. greatly improved | |
| Cataract, secondary capsular | 5 | 2 | 4 | 3 | 15 | 60 | 33 | Fng. 3 ft. | l. p. | Needled, 6 cases | Average 11 days | Improved, five cases | V. on discharge: l. = $\frac{20}{11}$, r. = $\frac{20}{20}$, i. = $\frac{15}{200}$ |
| Cataract, senile, incipient, with retinitis pigmentosa | 1 | | 1 | | | 40 | | $\frac{10}{200}$ | | Galezowski's extraction; ant. chamber washed out with L.'s syringe (iridectomy) | 53 days | Improved | V. = $\frac{20}{50}$ / $\frac{20}{50}$ |
| Cataract, senile, incipient | 45 | 12 | 28 | 29 | 38 | 92 | 60 | $\frac{20}{20}$ | $\frac{20}{70}$ | None | | | |
| Cataract, senile, immature | 37 | 16 | 25 | 28 | 30 | 76 | 60 | $\frac{20}{40}$ | l. p. | 2 cases extraction as above | 21 days | Improved; 1 occlusion of pupil | V. = $\frac{20}{40}$ |

| Cataract, senile, mature | 37 | 20 | 32 | 25 | 34 | 86 | 60 | 1. p. 3 cases above | extraction as Average 30 days | 2 improved; 1 worse | 1 V = $\frac{20}{30}$ and $\frac{20}{40}$. $\left\{ \begin{array}{l} V = \frac{20}{15}, \frac{20}{20}, 4 = \frac{20}{20/30}, 4 = \frac{20}{20/40}, 3 = \frac{20}{50}, 4 = \frac{20}{70}, 1 = \frac{20}{100}, 4 \text{ count fin-} \\ \text{gers at 20 feet and} \\ \text{the others are not} \\ \text{recorded.} \end{array} \right\}$ |
|--|--------|--------|--------|-----|----|----------|----|---|---|--|--|
| Cataract, trauma- tic | 15 | 8 | 20 | 3 | 2 | 80 | 28 | l. p. Atropine and hot bath- ing Extraction with iridec- tomy Extraction with iridec- tomy and washing out ant. chamb. with L.'s syringe l. case glasses Removal under cocaine | Unknown Unknown; 20, 58 and 61 days 2, 28 days; 1 un- known | Improved, two cases Improved, four cases Improved, two cases; 1 worse | In two foreign body removed. Panophth. and phthisis b. |
| Dislocated lens (sub-conjuncti- val) | 4 1 | — — | 3 1 | 1 | 34 | 70 34 | 57 | l. p. Fug. Removal under cocaine | 1 day 10 days | Improved Improved | V = $\frac{20}{70}$. Injury one and a half years ago. |
| Totals . . . | 171 | 66 | 133 | 104 | | | | | | | |
| Percentage of Females, 43 + %. | | | | | | | | Percentage of Negroes, 27 + %. | | | |

DISEASES OF THE OPTIC NERVE AND RETINA.—140 Cases.

| Amblyopia, con- genital | 4 | 2 | 2 | 15 mos. | 17 | 14 | Fug. $\frac{20}{100}$ 3 ft. | None | Stationary |
|---|---|---|---|---------|----|----|---------------------------------|-------------------------------|-----------------------|
| Amblyopia, from dental irritation | 1 | 1 | 1 | 1 | 24 | 24 | Atropine; attention to teeth | Atropine; attention to 9 days | Cured |
| Amblyopia, hys- terical | 1 | 1 | 1 | 1 | 68 | 68 | No further record | No further record | |
| Amblyopia, hys- terical L. E.; R. E., incipient at- rophy of globe | 1 | 1 | 1 | 1 | 16 | 16 | Atropine in L. E. | 2 days | Cured |
| | | | | | | | | | V = $\frac{20}{20}$. |
| | | | | | | | | | V = $\frac{20}{20}$. |

DISEASES OF THE OPTIC NERVE AND RETINA.—Continued.

| DIAGNOSIS. | RACE: | | SEX: | | AGE. | | | VISION: | | TREATMENT. | DURATION OF TREATMENT. | CONDITION ON DISCHARGE. | REMARKS. |
|---|-------|----|------|----|------|----|------|------------------|-----------------|--|------------------------|--------------------------------------|--|
| | W. | N. | M. | F. | From | to | avg. | from | to | | | | |
| Amblyopia, toxic (tobacco and alcohol) | 17 | 3 | 20 | | 29 | 63 | 42 | $\frac{20}{40}$ | $\frac{4}{200}$ | Abstinence; strychnia hypodermatically gr. $\frac{1}{20}$ increased to gr. $\frac{1}{6}$ daily No further record | 1, 30 and 1, 37 days | Cured | $V.=\frac{20}{30}$. |
| Amblyopia, uræmic | 1 | | 1 | | | 42 | | $\frac{20}{100}$ | | None. One case had $V.=\frac{20}{20}$ in other eye and one had syphilis 6 years ago, floating opacities in other eye with $V.=\frac{20}{40}$. | | | |
| Detachment of retina | 4 | | 3 | 1 | 6 | 29 | 16 | 1. p. | | Quinine, iron and strychnine | 36 days | Cured, 1 case; others never returned | Eyes were painful and when reading there was photophobia; V. under atropine $=\frac{20}{30}$. |
| Hemeralopia | | 2 | 2 | | 27 | 44 | | $\frac{20}{15}$ | $\frac{20}{30}$ | Atropine and hot applications Atropine | 18 days 23 days | Cured | $V.=\frac{20}{15}$. |
| Hæmorrhage, retinal (eccentric) | 1 | | 1 | | | 27 | | $\frac{20}{15}$ | | Atropine | 21 days | Cured | |
| Hyperæmia of retina (?) | 1 | | | 1 | | 15 | | $\frac{20}{20}$ | | None. Began 18 mos. ago; tumors of temple, shoulder and arm. | | | |
| Hyperæmia of retina, traumatic (blow on head caused headache and blindness) | | 1 | | 1 | | 16 | | $\frac{20}{40}$ | | | | | |
| Glioma | 1 | | | 1 | | 2½ | | | | | | | |

| Neuritis | 5 | 1 | 5 | 1 | 24 | 55 | 38 | $\frac{20}{70}$ | $\frac{20}{100}$ | Never returned for treatment. One was a barkeeper, 1 a painter, 1 a cook; 1 an old syphilitic; 1 a bad malarial history | Average 40 days | 1 unknown, 1 better, 1 worse | V. from $\frac{20}{10}$ raised to $\frac{20}{20}$ |
|----------------------------------|-----|----|-----|----|----|----|----|------------------|------------------|---|-----------------------|-------------------------------------|---|
| Neuritis, retro-bulbar | 2 | 1 | 3 | | 14 | 34 | 28 | $\frac{20}{100}$ | Eng. 1 ft. | KI, HgCl ₂ and strychnine | Average 37 days | Cured, 1 case | |
| Neuro-retinitis | 9 | 2 | 7 | 4 | 28 | 56 | 37 | $\frac{20}{40}$ | $\frac{20}{70}$ | KI. and strychnine (only one case took treatment) | | | |
| Optic atrophy, congenital | 1 | | 1 | | | | | | | No further record | | | |
| Optic atrophy, incipient | 9 | 3 | 9 | 3 | 23 | 61 | 44 | $\frac{20}{40}$ | $\frac{6}{200}$ | Strychnia hypodermatically up to gr. $\frac{1}{16}$ | Average 75 days | Cured, 4 cases | V. on discharge from $\frac{20}{15}$ to $\frac{20}{30}$. |
| Optic atrophy, partial | 17 | 9 | 18 | 8 | 10 | 92 | 43 | $\frac{20}{40}$ | l. p. | In two cases strychn. hypod. up to gr. $\frac{1}{16}$ — $\frac{1}{15}$ | 1, 49 and 1, 222 days | Improved, one; stationary, one case | In first case V. in 49 days improved from l. p. to $\frac{10}{200}$ and from $\frac{20}{70}$ to $\frac{20}{50}$. |
| Optic atrophy, total | 21 | 5 | 19 | 7 | 2 | 81 | 46 | l. p. | | None. Child of 2 was hydrocephalic | | | |
| Retinitis | 2 | | 1 | 1 | 20 | 39 | | $\frac{20}{70}$ | KI. | | 95 days | Cured, 1 case; 1 unknown | |
| Retinitis, hæmorrhagic | 1 | 1 | 2 | | 21 | 38 | | $\frac{20}{200}$ | Eng. 1 ft. | No further record | | | |
| Retinitis, hæmorrhagic, malarial | 1 | | 1 | | 41 | | | $\frac{20}{20}$ | | Quinine, arsenic, strychnine and iron | 2 weeks | Cured | |
| Retinitis, pigmentosa | 2 | 3 | 3 | 2 | 32 | 52 | 48 | $\frac{20}{30}$ | l. p. | None | | | |
| Retinitis, renal | 7 | | 5 | 2 | 25 | 25 | 37 | $\frac{20}{40}$ | l. p. | General | Unknown in five cases | Died; 1 in 5 and 1 in 55 days | |
| Totals . . . | 106 | 34 | 104 | 36 | | | | | | | | | |

Percentage of Females = 25 + %.

Percentage of Negroes = 24 + %.

GLAUCOMA.—43 Cases.

| DIAGNOSIS. | RACE: | | SEX: | | AGE: | | | VISION: | | TREATMENT. | DURATION OF TREATMENT. | CONDITION ON DISCHARGE. | REMARKS. |
|------------------------------|-------|----|------|----|------|----|------|---------|----|---|---|-------------------------|--|
| | W. | N. | M. | F. | From | to | avg. | from | to | | | | |
| Glaucoma, absolute | 4 | 5 | 2 | 7 | 23 | 70 | 54 | | | | | | |
| Glaucoma, acute inflammatory | 1 | | | 1 | | 48 | | | | l. p. Eserine gr. j to \mathfrak{z} j | 1 day | Improved | Never returned. |
| Glaucoma, secondary | 2 | 3 | 2 | 3 | 26 | 52 | 43 | l. p. | | One enucleation and iridectomy | Unknown | Improved, two cases | Secondary to iritis, only one eye affected. |
| Glaucoma, simple chronic | 14 | 4 | 6 | 12 | 32 | 77 | 59 | $20/40$ | | l. p. Eserine gr. j to \mathfrak{z} j | 1 day (then never returned), 1 unknown 4 months 41 days | Improved, one case | V. from l. p. to $22/60$. |
| | | | | | | | | | | Iridectomy (1 case) Iridectomy and extrac traction of lens (one case) | | Improved | |
| Glaucoma, simple incipient | 2 | 1 | 1 | 2 | 24 | 69 | 49 | $20/30$ | | l. p. Eserine gr. j to \mathfrak{z} j | 2 days (then never returned) | Improved, two cases | |
| Glaucoma, sub-acute | 4 | 3 | 3 | 4 | 32 | 80 | 47 | $20/70$ | | Iridectomy Eserine gr. j to \mathfrak{z} j | 41 days | Improved | Latter V. from fingers 1 foot to $20/20$; bad spells for one year; lost other eye from glaucoma 6 yrs. ago; clerk, aged 40. In 21 cases both eyes were affected in 6, only one eye in 15. |
| Totals | 27 | 16 | 14 | 29 | | | | | | | | | |

Percentage of Females, 67 + %

Percentage of Negroes, 37 + %.

DISEASES AND INJURIES OF THE WHOLE GLOBE.—73 Cases.

| DIAGNOSIS. | RACE: | | SEX: | | AGE: | | VISION: | | TREATMENT. | DURATION OF TREATMENT. | CONDITION ON DISCHARGE. | REMARKS. |
|--|-------|----|------|----|------|----|---------|--------|--------------------------|------------------------------------|-------------------------|---|
| | W. | N. | M. | F. | From | to | avg. | from | | | | |
| Blow on eye, contusion of lids and globe | 2 | 3 | 5 | | 19 | 65 | 37 | 20/40 | Atropine and hot bathing | Unknown | | |
| Blow on eye, laceration of sclera and ciliary body | | 1 | 1 | | | 36 | | | Enucleation | 2 days and then sent to his doctor | Improved | |
| Blow on eye, iritis | | | | 1 | | 17 | | | Atropine and hot bathing | 8 days | Improved | Struck by handle of cotton jack-screw. |
| ant. caps. cataract and detachment of retina | | | | | | | | | | | | Hit with piece of iron. |
| Buphthalmos | 1 | | | | | 13 | | 20/20 | None | | | |
| Exophthalmic goitre | 1 | | | 1 | | 60 | | | Sent back to doctor | | | |
| Exophthalmic goitre with incipient cataract | | | | | | 60 | | | Sent back to doctor | | | |
| Exophthalmic goitre with choro-ditis | | 1 | | | | 15 | | | 1 p. KI. in large doses | Never returned | | |
| Exophthalmos due to exostosis of orbit | 1 | | | 1 | | 50 | | 20/30 | Never returned | | | |
| Exophthalmos due to orbital hæmorrhage | | 1 | | 1 | | 18 | | 20/100 | Atropine and bandage | 2 days, then never returned | Improved | Second day V = 20/20. Struck 10 days ago. Exophthalmos began 24 hours later. Was opened five years ago when some fluid escaped. |
| Exophthalmos due to tumor (cystic) of orbit | | 1 | | 1 | | 45 | | 20/70 | Advised operation | Never returned | | |

DISEASES AND INJURIES OF THE WHOLE GLOBE.—Continued.

| DIAGNOSIS. | RACE: | | SEX: | | AGE: | | VISION: | | TREATMENT. | DURATION OF TREATMENT. | CONDITION ON DISCHARGE. | REMARKS. |
|--|-------|----|------|----|------|----|---------|------------------|---|--|-------------------------|--|
| | W. | N. | M. | F. | From | to | avg. | from | | | | |
| Exophthalmos due to tumor (probably sarcoma) of orbit | 2 | | | 2 | 26 | 45 | | $\frac{20}{30}$ | Advised operation in 1, non-interference in other | 1st never returned 2d observed 60 days | Stationary | First began one month ago, 2d growth began two years ago; glaucomatous symptoms began eighteen months ago. |
| Exophthalmos due to orbital tumor | | 1 | | 1 | | 19 | | | Advised removal | Never returned | | |
| Foreign body (gun powder) within eyeball | 1 | | 1 | | | 30 | | | l. p. None | | | |
| Hæmorrhage into vitreous (traumatic) | 1 | | 1 | | | 30 | | $\frac{15}{100}$ | Atropine and bandage | 18 days | Cured | V. $\frac{20}{200}$ |
| Orbital tumor, sarcoma | | 1 | 1 | | | 15 | | | Exenteration; treated as open wound | 33 days | Improved | Enucleation 3 years ago. |
| Orbital tumor, glioma | 1 | | 1 | | | 5 | | | Exenteration and packing with iodoform gauze | 14 days. (Orbit granulating went home) | Improved | Enucleation 3 months ago. |
| Panophthalmitis | 2 | 4 | 5 | 1 | 8 | 53 | 26 | | Advised enucleation; atropine, heat | Enucleation in 3 cases; 1, 22 and 1, 25 days; 12 days then ran off | Improved | Found in 1 gun cap which entered thirty years ago, 1 began to pain 2 years ago. |
| Phthisis bulbi | 20 | 10 | 20 | 10 | 6 | 70 | 42 | | None | Enucleation, K I. in 2 mos. (1 case) | Improved | V. $\frac{20}{200}$ |
| Phthisis bulbi L. E., choroiditis (sympathetic?) R. E. | 2 | | 2 | | 19 | 28 | | $\frac{8}{100}$ | Fng. Enucleation, K I. in 2 mos. (1 case) large doses | | | |

| | | | | | | | | | | | |
|--------------------------------------|----|----|----|----|----|-----------------|-----------------|--|--|----------------|--|
| Sympathetic inflammation | 1 | 1 | 1 | 8 | 27 | $\frac{20}{20}$ | $\frac{20}{30}$ | None | Stuck pen-knife in L. E. 7 years ago; 2 mos. later R. E. became inflamed. In 1864 piece of gun cap entered R. E.; 4 yrs. ago L. E. began to fail | Cured, 4 cases | V. in irritated eyes after enucleation, $\frac{20}{20}$; 3 penetrating wounds |
| Sympathetic inflammation, results of | 1 | 1 | 8 | 53 | | | | None | | | 4 phthisis bulbi, 1 traumatic disorganization, 1 panophthalmitis of unknown origin of fellow eye, and 1 cause unknown. |
| Sympathetic irritation | 7 | 3 | 8 | 55 | 27 | $\frac{20}{20}$ | $\frac{20}{30}$ | Advised enucleation; operated in 4 cases | | | |
| Traumatic disorganization | 1 | 1 | 2 | 15 | 18 | | | Enucleation | 7 days | Improved | |
| Totals . . | 46 | 27 | 52 | | | | | | | | |

Percentage of Females = 28 + %.

ERRORS OF REFRACTION.—617 Cases.

| Errors of refraction (unclassified) | 149 | 23 | 43 | 129 | 7 | 81 | Refraction never worked out. (Highest glass necessary under atropine) | Cured | The negroes simply wished to wear glasses I believe. |
|-------------------------------------|-----|----|----|-----|----|----|---|---------------|--|
| Ashenopia, accommodative | 9 | 5 | 2 | 12 | 12 | 37 | Under atropine $\frac{20}{20}$ 24 | A week or two | |
| Astigmatism, irregular | | 1 | | 1 | | 18 | None $\frac{10}{200}$ | | |
| Spasm of ciliary muscle | 2 | | 1 | 1 | 13 | 33 | Atropine $\frac{20}{40}$ $\frac{20}{60}$ | 2 days | V. under atropine = $\frac{20}{20}$. |

ERRORS OF REFRACTION.—Continued.

| DIAGNOSIS. | RACE: | | SEX: | | AGE. | | | VISION: | | TREATMENT. | DURATION OF TREATMENT. | CONDITION ON DISCHARGE. | REMARKS. |
|----------------------|-------|----|------|-----|------|----|------|---------|---------|------------------------------|------------------------|-------------------------|---|
| | W. | N. | M. | F. | om. | to | avg. | from | to | | | | |
| H. | 159 | 28 | 51 | 136 | 6 | 71 | 32 | 20/15 | 10/2000 | + 8° D. | 3 or 4 days | Improved | V. with glass never worse than 20/50. |
| HAs. | 8 | | 2 | 6 | 12 | 38 | 30 | 20/20 | 20/70 | + 3° D. ax. 90° | 3 or 4 days | Improved | V. with glass never worse than 20/30. |
| H.HAs. | 70 | 8 | 14 | 64 | 7 | 76 | 25 | 20/15 | 12/2000 | + 5° C + 1° ax. 90° | 3 or 4 days | Improved | V. never worse than 20/80. |
| M. | 55 | 5 | 21 | 39 | 5 | 73 | 28 | 20/40 | 6/200 | — 14° D. | 3 or 4 days | Improved | V. with glass never lower than 20/50 when fundus healthy. |
| MAs. | 3 | | | 3 | 24 | 39 | 30 | 20/30 | 20/70 | — 250s ax. 60° | 3 or 4 days | Improved | Ax. 180° once, oblique twice. |
| MMAs. | 20 | 1 | 3 | 18 | 10 | 60 | 20 | 20/30 | 8/200 | — 8° C — 2° ax. 180° | 3 or 4 days | Improved | |
| HAs.MAs. | 1 | | 1 | | 30 | | | 20/40 | 20/100 | + 1° ax. 90° C — 1° ax. 180° | 3 or 4 days | Improved | |
| <i>Anisometropia</i> | | | | | | | | | | | | | |
| H. and E. | 1 | | | 1 | | 47 | | 20/200 | 20/70 | | 3 or 4 days | Improved | Normal eye amblyopic |
| M. and E. | 1 | | | 1 | | 9 | | 20/60 | 20/15 | | 3 or 4 days | Improved | |
| H. and HAs. | 5 | | | 5 | 14 | 24 | 20 | 20/15 | 20/100 | | 3 or 4 days | Improved | |
| H. and HAs.MAs | 1 | | | | | 26 | | 20/50 | 20/200 | | 3 or 4 days | Improved | |
| H. and M. | 1 | | | 1 | | 60 | | 20/70 | 20/200 | | 3 or 4 days | Improved | |
| HAs. and MAs. | 1 | | | 1 | | 46 | | 10/70 | 20/100 | | 3 or 4 days | Improved | |
| H.HAs. and MAs. | 1 | | | 1 | | 18 | | 20/50 | 20/70 | | 3 or 4 days | Improved | |
| HAs. | | | | | | | | | | | | | |
| M. and MMAs. | 2 | | | 2 | 20 | 28 | | 6/200 | 20/200 | | 3 or 4 days | Improved | |
| MAs. HAs. and MMAs. | 1 | | | | | 36 | | 20/40 | 20/200 | | 3 or 4 days | Improved | |
| Totals | 490 | 71 | 140 | 421 | | | | | | | | | |
| P. | 40 | 16 | 14 | 42 | | | | | | | | | |
| Grand total. | 530 | 87 | 154 | 463 | | | | | | | | | |

Percentage of Females = 75 + per cent.

Percentage of Negroes = 14 + per cent.

AFFECTIONS OF THE EXTRINSIC OCULAR MUSCLES.—149 Cases.

| DIAGNOSIS. | RACE: | | SEX: | | AGE: | | VISION: | | TREATMENT. | DURATION OF TREATMENT. | CONDITION ON DISCHARGE. | REMARKS. |
|--|-------|----|------|----|------|----|---------|----------------------------------|---|---------------------------------|-------------------------|--|
| | W. | N. | M. | F. | From | to | avg. | from to | | | | |
| All muscles supplied by third nerve, paralysis of | 5 | 3 | 5 | 3 | 3 | 50 | 33 | $\frac{20}{18}$ $\frac{20}{200}$ | KI. pushed to the limit of tolerance | 75 and 111 days | Cured, 2 cases | |
| Levator palp. sup. paralysis of (ptosis) | 4 | 4 | 7 | 1 | 16 | 64 | 39 | $\frac{20}{20}$ $\frac{20}{30}$ | None returned for treatment | | | |
| Levator palp. sup. paralysis of, with paresis of int. rectus | 1 | | 1 | | 35 | | | $\frac{20}{20}$ | Faradic electricity, KI. 30 days gr. x t. i. d. | 30 days | Cured | Relapse 1 month later cured by same treatment. |
| Nystagmus | 1 | 2 | 3 | | 22 | 39 | 30 | $\frac{20}{50}$ $\frac{20}{200}$ | None | | | |
| Orbicularis, paralysis of | 4 | | 3 | 1 | 60 | 85 | 68 | $\frac{20}{80}$ $\frac{20}{200}$ | None. Never returned | | | |
| Orbicularis, fibrillar contractions of | 2 | | 1 | 1 | 33 | 53 | | $\frac{20}{20}$ $\frac{20}{100}$ | Never returned | | | |
| Rectus externus, insufficiency of | 4 | | 2 | 2 | 9 | 39 | 25 | $\frac{20}{20}$ | Strychnia and prisms | | Improved | |
| Rectus externus, paralysis of | 8 | 1 | 6 | 3 | 7 | 72 | 33 | $\frac{20}{15}$ $\frac{20}{100}$ | Never returned | | | |
| Rectus externus, paresis of | 5 | 3 | 6 | 2 | 12 | 67 | 34 | $\frac{20}{15}$ $\frac{20}{200}$ | Prisms, KI., & HgCl ₂ in full doses | 21 days, 1 case; others unknown | Cured, 2 cases | One case certainly syphilitic. |
| Rectus internus, insufficiency of | 2 | | 1 | 1 | 12 | 29 | | $\frac{20}{20}$ | Lenses and prisms | 30 days, 1 case | Improved, one case | |
| Rectus internus, paralysis of | 1 | | 1 | | | 21 | | Frg. 2 ft. $\frac{20}{20}$ | Never returned | | | |
| Rectus internus, hysterical paralysis of | | 1 | | 1 | | 22 | | | | | | |

AFFECTIONS OF THE EXTRINSIC OCULAR MUSCLES.—Continued.

| DIAGNOSIS. | RACE: | | SEX: | | AGE: | | | VISION: | | TREATMENT. | DURATION OF TREATMENT. | CONDITION ON DISCHARGE. | REMARKS. |
|---|-------|----|------|----|------|------|------|-------------------------------|-------------------------------|--|---|-------------------------------|--|
| | W. | N. | M. | F. | From | to | avg. | from | to | | | | |
| Rectus int. and inf., paresis of | 1 | | | 1 | | 63 | | | ²⁰ / ₂₀ | Sent to neurologist | | | |
| Obliquus superior | 1 | | 1 | | | 23 | | | ²⁰ / ₂₀ | Never returned | | | |
| Insufficiency of Strabismus, convergent alternating | 1 | | | 1 | | 5 | | | | Atropine | 5 days | Slightly improved | |
| Strabismus, convergent concomitant | 71 | 3 | 36 | 38 | 1 | 49 | 12 | ²⁰ / ₂₀ | ²⁰ / ₁₀ | Atropine and glasses | 2 unknown, 1, 25 and 1, 39 days | Almost cured, 4 cases | |
| | | | | | | | | | | Fog. 1 ft. | | | |
| | | | | | | | | | | Atropine and glasses, single strabotomy in 27 cases; double in 4 cases; strabotomy and advancement of ext. rect. in 1 case | From strabotomy to discharge, average time 20 days | Perfect correction in 6 cases | V. o. u. before operation= ²⁰ / ₂₀ in 5 cases. In 1 case V. improved in 16 days after operation from ²⁰ / ₆₀ to ²⁰ / ₃₀ (aged 20). |
| Strabismus, convergent fixed, high amblyopia and rotary nystagmus | 1 | | | 1 | | 14 | | ²⁰ / ₆₀ | | Single strabotomy | 11 days | Perfect correction | |
| Strabismus, convergent fixed with traumatic cataract | 1 | | | 1 | | 20 | | ²⁰ / ₂₀ | | Cataract needed; strabotomy and subsequent advancement of ext. rectus | 240 days | Almost perfect correction | |
| Strabismus, convergent paralytic | 1 | | 1 | | | 21 m | | | | None | | | |
| Strabismus, convergent periodic | 8 | 1 | 2 | 7 | 1 | 7 | 4 | could not read | | None | In one who could read V. o. u.= ²⁰ / ₃₀ | | |
| Strabismus, divergent concomitant | 4 | 1 | 2 | 3 | 16 | 39 | 23 | ²⁰ / ₁₅ | ²⁰ / ₇₀ | Division of ext. rectus, 2 cases | Unknown | Perfect correction | |
| Strabismus, divergent, fixed (leucomata) | 2 | 2 | 1 | 3 | 1 | 22 | 13 | ²⁰ / ₃₀ | | Atropine, glasses and division of ext. rectus | 6 days (one case only) | Perfect correction | |
| Totals | 128 | 21 | 79 | 70 | | | | | | | | | Percentage of Females = 47 (almost) % |
| | | | | | | | | | | | | | Percentage of Negroes = 14 + %. |

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ORIGINAL ARTICLES.

THE CORRECTION OF ANISOMETROPIA.

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It is a very common belief that the principal advantage of consulting the ophthalmic surgeon as to the fitting of glasses, is that by so doing the glasses will be adapted to compensate for any natural difference between the two eyes; the difference between the two eyes, as to focus, being regarded as the serious condition that requires the exercise of his special skill. It is the universal rule laid down in text-books of ophthalmology, and practiced by all who attempt to make exact measurements of the refraction of the eye, to test the two eyes separately; and in general to give each eye its proper correcting lens. This is done unless the difference between the two eyes is so great that they can not be made to work together; in which case, the general rule is to correct the refraction of the better eye, and to give the other eye a corresponding glass, disregarding in the main, the condition of refraction present in it.

There has been, however, no general scheme of clearly formulated rules by which it might be determined when a particular case presented such differences in the refraction of the two eyes as to preclude the probability or possibility of their being habitually used in accurate binocular vision; nor have

the factors which enter into the determination of these limits for the proper correction of anisometropia been generally studied or carefully discussed. Anisometropia like ametropia in general makes trouble either by preventing perfect vision, or by making it difficult to attain, so that the benefit of it is only secured at the cost of eye-strain. And, as with the various forms of ametropia it is in the higher degrees and in later life that it entails imperfect vision; and in the lower degrees and earlier life that it causes eye-strain.

The careful investigations as to the normal power of overcoming differences of focus between the two eyes by differences of accommodation, reported by A. Fick, of Zürich ("On Unequal Accommodation in Healthy Eyes and in Anisometropia," *Archives of Ophthalmology*, 1889, p. 292) in direct contradiction to those of earlier observers indicate that there is some power of overcoming anisometropia by unequal accommodation, but the extent of inequality that may be thus overcome is strictly limited to 1. D. or at the most 1.5 D. Some of Fick's observations in this direction I have been able to partly confirm. When the amount of anisometropia is less than 1. D. or 1.5 D., the patient may not be conscious of seeing any better with one eye than the other, and equally good and simultaneous vision may be found on careful testing; but the use of the eyes entails symptoms of eye-strain that may be out of proportion to the refractive error in either eye considered alone.

Where in one eye the ametropia is of such low degree as not to entail eye-strain, while the difference of refraction between the two eyes is so great as to preclude the focusing of both together upon the same object, the patient will not suffer from eye-strain. If, however, the second eye presents ametropia of low degree, distinctly differing in kind or degree from the ametropia of the first eye, symptoms of eye-strain are very liable to develop. This class of cases may be illustrated by the following:

Miss M., aged 28 years, teacher, no dimness of vision. Has long suffered from repeated attacks of inflammation of the eyes and of the lids, with severe headache, closely connected with the use of the eyes for accurate seeing. These symptoms have largely limited her capacity for eye work for some years. Under atropine, she was found to present, in the right eye, mixed astigmatism of 1.25 D., and the left 0.25 D. of

hyperopia. There was nothing in her history pointing especially to defect of the right eye.

The correcting glasses were given and worn constantly. Four months later she had been free from any trouble with the eye or headache, "found the glasses a great comfort," and used her eyes "three times as much as before."

In contrast to the above, we take the following: Miss E., aged 32 years, keeping house, has always had defective vision in the right eye. Three years ago she was troubled with headaches and got a pair of glasses, right and left 1.5 D., spherical convex, which relieved her entirely. She consulted me to see what could be done to improve vision in the right here.

Her vision was R., $\frac{4}{LXXX}$; L., $\frac{4}{IV}$ partly.

Under a mydriatic:

R., + 0.25 sph. \bigcirc + 6. cyl. ax. 112° , $V = \frac{4}{X}$.

L., + 2. sph. \bigcirc + 0.37 cyl. ax. 110° , $V = \frac{4}{IV}$.

She was ordered:

R., + 6 cyl. ax. 112° .

L., + 1.75 sph. \bigcirc + 0.37 cyl. ax. 110° .

Which pleased her with the greatly improved vision of the right eye, but gave her little or no more complete immunity from headache and eye strain than had her spherical lenses.

It might seem that the physiological ability to overcome differences of refraction between the two eyes would fix the degree an anisometropia capable of perfect correction by lenses, and probably the psychical power of binocular fusion is to some extent determined by these limits of the normal power of unequal accommodation. But in the main, the proper limits for the full correction of anisometropia are determined by other factors. One of the most important of these factors is the prismatic effect of the peripheral portion of a lens. This increases with the distance from the optical centre at a rate proportioned to the strength of the lens.

At the optical centre, the rays being unrefracted, the object is seen in its true direction, whatever the strength of the lens. When, however, the visual axis does not pass through the optical centre, the object looked at suffers an apparent displacement, proportioned to the strength of the lens, and the distance of the visual axis from the optical centre. When the two eyes look through points equally distant in the same direction from the optical centre, as when we look obliquely through

centered lenses placed before the two eyes, if the lenses be of equal strength, the apparent displacement of the object seen will be the same for both eyes. If, however, the lenses differ in kind or strength, the apparent displacements of the point looked at will correspondingly differ; and, in order to bring the impression of that point upon the fovea in each eye, the visual axes will need to be turned in somewhat different directions. The power to turn the visual axes in different directions varies in different individuals, but is definitely limited in all. This limit is narrowest in the vertical direction. Most persons are unable to turn one visual axis more than two degrees (four centrad) above or below the other. Laterally, the difference may be greater, double this amount for outward deviation and double that of convergence.

When correcting glasses are looked through obliquely, if they are of unequal strength, the visual axes are compelled to take this abnormal position, and the difference in direction between them is increased with the difference of strength of the two lenses. Increasing the difference of strength between the two glasses, or the distance of the visual axes from the respective optical centres, a point is presently reached where the difference of direction passes the limit of physiological variation for the ocular movements. When the eyes are no longer able so to turn, as to bring the two impressions of the object looked at on the foveas of both eyes, double vision commences. Hence, with decided differences of strength in the lenses, the patient is liable to see double on looking through the peripheral part of his glasses; even though the optical centres might be used with perfect satisfaction. And even before the extreme limit of variation in the direction of the visual axes is reached and double vision begins, there comes difficulty and strain in maintaining the differences of direction. So that the limit of difference within which the lenses can be used with comfort is much narrower than that within which they can be used without actual diplopia. Still this limit may be considerably increased by practice and care. Where prolonged looking is to be done, the head should be so turned that the visual axes are brought to the region of the optical centres of the lenses. The considerably wider range of possible convergence and divergence than of vertical deviation causes the diplopia first experienced to be usually vertical. Differences in the

strength of the lenses used before the two eyes are commonly limited by the risk of producing vertical diplopia, or eye-strain in the effort to avoid vertical diplopia.

With spectacle lenses of the usual size, properly mounted, the range of the visual axis is about one centimetre above or below the optical centre of the glass. The amount of deviation produced by a lens at any given distance from its optical centre, expressed in centrad which closely correspond to degrees of refracting angle is one centrad for each dioptré of lens strength, for each centimetre of departure from the optical centre. Thus a lens of 2 D. strength at 1 cm. from its optical centre causes a deviation of 2 centrad.

It follows then that two dioptrés difference in the strength of the lenses before the two eyes is as much as it is generally possible to make, without causing diplopia when the patient looks through the upper or lower part of his glasses. With some patients, even this difference would be too great. Hence glasses to be used for both near and distant vision should not differ more than this in strength, unless by actual trial somewhat prolonged, it has been ascertained that the patient will tolerate a greater separation of the visual axes; or unless he prefers occasional diplopia, with the use of both eyes, to the disuse of one eye and freedom from diplopia.

If the lenses are to be used for looking in one direction only, or with the visual axis passing through a certain limited part of the glass, or where the patient is willing to put up with the diplopia, and will not suffer in the attempt to avoid it, the difference between the two glasses may be made greater than this. The amount of such difference allowable must be determined by a trial in the individual case. I have had a patient express the liveliest satisfaction with glasses that differed 4 D. in strength in the vertical meridian, and which gave her constant diplopia on looking through their upper and lower margins. But even in such a case caution must be observed, that the patient shall not injure the eyes by strain within the field of single vision.

What is commonly spoken of as the difference in size of the retinal images, produced by correcting lenses of different strengths, is simply a special instance of this unequal prismatic action in the peripheral portions of unequal lenses; and the confusion and eye-strain associated therewith come about,

not by reason of the mere inequality of size of the images, but through the difference of position of what should be corresponding points to which attention is directed. The annoyance and pain are of the nature of eye-strain from muscular faults, entailing a similar effort to avoid binocular diplopia.

The extent of the tendency to diplopia being dependent on the distance of the point looked through from the optical centre, and this distance being proportioned to the distance of the lens in front of the centre of rotation of the eye, it follows that the placing of the lenses as close as possible to the eye will allow of greater differences in their strength without increased inconvenience or liability to diplopia, the eye being able to turn so as to command as large a field of fixation through a smaller portion of the lens. On this account lenses for the correction of anisometropia may be brought as close to the eye as practicable. Care as to this point in their mounting may make the difference between comfort and discomfort, success and failure.

It is probable that when an eye has never been used for purposes of accurate vision, there exists a corresponding lack of development in the visual centers, which renders the use of the two eyes together at first especially difficult. This increases the inconvenience and annoyance that necessarily attend any change of lenses. But this lack of development may be partly or wholly overcome by prolonged effort; and if the difference between the two lenses be not so great as to cause actual diplopia, and the patient's nervous system is not especially liable to be disturbed by unusual effort, lenses given for the correction of anisometropia, which at first give little or no relief, will at the end of the period of adaptation prove perfectly satisfactory. It may usually be safely predicted if the annoyance caused is not entirely constant during the first few days, that in time it will entirely disappear, in young people. At, and after, middle life, less must be attempted in this direction.

In another considerable class of cases, where the anisometropia is of high degree, or when one eye is ametropic or amblyopic, true binocular vision is not to be obtained, even by the full correction of the anisometropia. In these cases, the vision of the worse eye being very imperfect the impressions made upon it have been habitually disregarded, and even with

the use of lenses, can not be brought to influence much the conscious perception of objects directly looked at. Such eyes count for little except to extend the peripheral field of vision. In these cases, the correction of anisometropia will cause no annoyance. But at the same time it will not give good binocular vision; and if it does not improve vision in the peripheral portion of the field, such a correction is useless; and, it may be as well simply to give for the worse eye such a spherical lens as will balance the correcting lens of the better eye.

In ascertaining whether in a given case it will be wise to fully correct the anisometropia present, much may be learned by simply placing the proper lenses in the trial frame, and allowing the patient to use them, after the effect of the mydriatic has fully passed away. In doing this, the object is not to make a prolonged trial, since nothing short of weeks or months will entirely reveal the individual power of adaptation; but is rather to make a short trial of various sorts of eye work, especially of habitual acts such as looking up suddenly to a distance, reading in various positions, and working at some habitual labor, as for instance, posting books where it is necessary to turn the eyes frequently from one position to another. In this way the amount of annoyance likely to be caused in the early use of the glasses, and the effect this will have upon the individual may be noted; and from them the surgeon can judge as to whether it is best to order the correction for habitual use.

In some few cases we may reach the full correction of anisometropia by the temporary use of a partial correction. When this is attempted the deduction from the full correction should be made mainly as regards the spherical lens, although in cases in which the difference is mainly in the amount of astigmatism, or in the direction of the principal meridians of astigmatism, a deduction may also be made from the full cylindrical correction. In becoming accustomed to glasses correcting anisometropia, little progress can be hoped for unless the glasses are worn continuously.

Where anisometropia has arisen from changes in refraction in one eye, or unequal change in both, causing eye-strain, with perhaps heterophoria, or even actual squint, or, if these other conditions have been developed as effects of previously existing anisometropia, complete relief of symptoms may be

expected from its proper correction. If, however, they have existed for a great length of time, squint or heterophoria may remain permanently or require operative treatment. Where the anisometropia is congenital, or of sufficient amount to have prevented the habitual use of one of the eyes, there may be some gain, often considerable, in the acuteness of vision of the previously unused eye. Although this gain may not seem very great, looked at from the standpoint of the scientific standard of visual acuteness, it is again that is generally highly appreciated by the patient. The amount of such gain in the individual case can not be well predicted. It is only to be ascertained by actual trial. Hence the prognosis regarding it, while encouraging, can not be very definite.

A CASE OF RUPTURE OF THE LIGAMENTUM
PECTINATUM (CYCLODIALYSIS), IRIDO-
DIALYSIS AND DISLOCATION OF THE
LENS DUE TO CONTUSION.

BY ADOLF ALT, M.D., ST. LOUIS, MO.

[*With Micro-Photographs.*]

W. D., a laborer, 57 years old, consulted me on October 13, 1894. Three hours previously, while he was splitting wood, a large piece had struck his right eye, rendering him almost insensible with pain, and destroying vision at once.

I found an intensely congested eye, a large abrasion of the outer lower quadrant of the cornea and the anterior chamber completely filled with blood.

Under palliative treatment the blood became very slowly absorbed and gradually a large iridodialysis upwards and inwards (on the side diametrically opposite to where the wood struck the eye), became visible. When the anterior chamber was nearly free from blood, it was evident that the crystalline lens, though almost normal in transparency, was dislocated down and outward and it floated back and forth with the movements of the eyeball. When it became possible to illumi-

nate the background of the eye, large a small hæmorrhagic opacities were seen floating in the vitreous body. Gradually the optic nerve became visible and appeared very anæmic.

At this stage the eye had apparently lost all irritability and the patient wanted to return to his work. When I discharged him eight weeks after the occurrence of the injury his vision in this eye was not much more than perception of light.

On June 2, 1895, he returned with the statement, that the injured eye had two weeks previously suddenly become inflamed and very painful and particularly so at night time. The eye was again intensely congested, the pupil was large, the iris pressed forward in a down and outward direction by the dislocated crystalline lens. The tension was increased and the ciliary region painful on pressure. No light reflex could be obtained from the interior.

The patient now demanded the removal of this painful eye and I performed the operation the next day. The healing was uneventful.

In examining the hardened eyeball I first made meridional sections through the parts of greatest interest, namely, the site of the iridodialysis. The detached iris tissue, besides being considerably contracted toward the sphincter edge, is atrophic, and contains a large quantity of blood pigment, and of uveal pigment which is partly enclosed in cells, partly free. The walls of its bloodvessels are considerably thickened. The uveal layer is very thick, wrinkled and folded concentrically. The free torn edge is tilted backwards. The sections do not show any union of what may be termed the anterior and the posterior flap of the tear, as I have seen it many times after an iridectomy or injury to the iris and as I have described it in the *Archives of Ophthalmology and Otology*, Vol. IV, Nos. 3 and 4. In this specimen there is simply a ragged edge.

On viewing the part from which the iris-periphery had been torn, the most interesting point of this eye was found. Inward of Schlemm's canal where the tendon of the ciliary muscle and the ligamentum pectinatum should have been, there lies only an accumulation of pigment molecules. (See Fig. 1). Such molecules can also be traced through the fissures of the scleral tissue and into Schlemm's canal. The inner surface of the sclerotic backwards from this point is covered by some longitudinal muscular fibres only. The ciliary

body itself is found quite a distance (about 4 mllms.) farther back, indeed in a portion of the site of this cyclodialysis as far back as the entrance of an anterior ciliary artery. (See Fig. 2). Its shape is considerably altered by the retraction and the contraction of its muscular fibres. It is firmly attached to the inner surface of the sclerotic by newly formed connective tissue. Its processes, being closely folded and pressed upon each other, have grown together.

On the anterior surface of this retracted ciliary body and near its attachment to the sclerotic sits (in meridional sections) a small teet-like elevation which reaches farther on either side than the iridodialysis does and which, as I think, can not be taken for anything else, than the remnants of the tendon of the ciliary muscle and ligamentum pectinatum. (See Figs. 3 and 4, both taken from a portion outside of and near to the iridodialysis.) The pigment molecules, above mentioned, lying attached to the torn inner wall of Schlemm's canal are, as it seems due to an adhesion of the anterior iris surface to it, which at one time existed and later has disappeared, at least so it would appear from Fig. 3, or they may be remnants of hæmorrhages into the anterior chamber and pigment cells shed and destroyed earlier in the history of the case.

In front of this cyclodialysis, Descemet's membrane is wrinkled and for some distance retracted toward the center of the cornea and a considerable amount of pigment is adherent to its endothelial cells which have undergone changes as described by me in Nos. 2 and 3, 1896, of this journal.

On the side opposite this cyclo- and iridodialysis the dislocated crystalline lens has pressed the iris forward against the inner surface of the cornea. Thus an adhesive inflammation (see Fig. 5) has been started by which the iris-angle is closed up. Here, also, blood pigment and cellular pigment molecules choke up all the fissures of the ligamentum pectinatum and lie within Schlemm's canal. (See Fig 6). In equatorial sections this condition prevails almost in all sections of the circle.

In the meridional sections this adherent portion of the iris appears very much folded and wrinkled; its pupillary edge has assumed a peculiar beak-like shape and the anterior endothelial layer together with some, probably newly formed, connective tissue is in parts detached in form of a thin membrane.

Iris and ciliary body, in fact all the tissues show signs of

a recent inflammatory process by considerable round-cell infiltration. Remains of hæmorrhages are found everywhere.

The histological conditions of Schlemm's canal readily explain the increased intra-ocular pressure.

I am not aware of the observation of a similar case of cyclodialysis and this is the first time that I have met with such a condition. This unique feature of the case alone prompts me to report it.

The further changes in the posterior portions of the eye, though otherwise of interest, I do not think of importance here.

ACQUIRED AMBLYOPIA. M. L. FOSTER (*Annals of Ophthalmology and Otology*, Vol. V, No. 11).

A young man, 20 years of age, consulted me in September, 1892, to have his eyes examined preparatory to entrance into the Massachusetts Institute of Technology. At that time the vision of each eye was $20/x_v$; there was no astigmatism, manifest hypermetropia or muscular insufficiency, and only one dioptré of latent hypermetropia. His only ocular trouble was a certain amount of chronic conjunctivitis. He became an indefatigable student in the Institute, and in the following April returned to me with this history: One night during January, he passed from 8 P. M. to 7 A. M. doing some very fine mechanical drawing. He was then seized with a pain in his right eye which radiated backward and down into the neck. This pain persisted and about March a less amount of pain appeared in the left eye. At the time of his second visit to me, April, 1893, the vision of his right eye was reduced to $20/x$, while that of his left eye was as before $20/x_v$. No improvement of the vision of the right eye could be obtained with glasses, the refractive condition was the same as formerly and nothing could be found within the eye to furnish the slightest explanation of the loss of vision.

The author advances the opinion, not positively but rather tentatively, that the amblyopia in this case was due to exhaustion of the nerve elements at the fovea centralis.

OPHTHALMIC DIGEST.

BY J. ELLIS JENNINGS, M.D.,

OF ST. LOUIS, MO.

HOT AND COLD APPLICATIONS IN THE TREATMENT OF DISEASES OF THE EYE. WILLIAM CAMPBELL POSEY, M.D. (*University Medical Magazine*, August, 1896).

Each one of you, probably, has been asked the question, "Is it better to bathe the eyes with hot or with cold water?" Although this would seem to be a question which would find a ready answer, many would hesitate a moment before replying. The great majority of authors commit themselves to the doctrine of Sir Henry Drummond, which is, briefly, that the temperature of applications is a point which the patient might be suffered to judge for himself according to the degree of comfort which he derived from it. This advice is unsatisfactory and unscientific, not to mention the risk of shaking our patient's confidence in our skill. If the treatment of ocular diseases was simply a question of influencing the temperature, the indications for the employment of these agents would be quite simple, but in addition to the action which they have upon heat control, that which they exercise upon the circulation of the eye, is of no less significance from a clinical standpoint.

In inflammatory conditions, cold limits the exudation and checks the secretion by constricting the capillaries, while heat aids in the healthful repair of tissues by absorbing the exudation and by carrying the proper nourishment to the part. Again, in the early stages of inflammation, cold relieves pain both by preventing the flow of blood to the part by its contracting the bloodvessels and by its limiting the amount of exudation. In the latter stages heat relieves pain by absorbing the exudation and lessening the tension of the inflamed area. Again, heat greatly augments the diffusibility of liquids

into the eye. Bellarminoff and Dolganoff having shown that the rapidity and the amount in which drugs are absorbed after the application of the hot compress is due to a change which is wrought in the corneal epithelium.

Finally, both agents have a germicidal action. It has been found that a 1:10,000 hot solution of the bichloride of mercury is more efficacious in destroying pus-formation than a cold one of 1:2,000. Water itself from 110° to 140° C. kills many bacteria, whilst cold, even at the temperature at which it may be applied to the eye, will hinder the development of germs and even prevent their growth.

APPLICATION IN DIFFERENT DISEASES.

Conjunctivitis.—In hyperemia of the conjunctiva, induced by ametropia or the presence of a foreign body, we have in cold a simple but effective means of restoring the membrane to its healthy condition. In these cases, the douche or the compress may be applied over the closed lids with the greatest advantage for fifteen minutes at a time. The water employed should not be too cold, or excessive reaction may follow its use.

In the severer forms of conjunctivitis, when there is a purulent inflammation or an exudate, ice is the sovereign remedy, and there is but one way to apply it and that is by the continued use of the ice compress. We need not fear disastrous results from its prolonged application, for of all the remedies we have at our command in combating this type of disease in the early stages, this is undoubtedly the best. At the commencement of the disease the board-like swelling of the lids is doubtless one of the chief causes in elevating the temperature, and, as the swelling and induration prevent the cold from gaining access to the eye, it is necessary that the treatment should be energetic and prolonged. The compresses, therefore, should be maintained night and day in such cases, and should only be desisted in when a corneal ulcer threatens or the secretion becomes excessive. If either of these two contingencies should arise, the ice-compress should be at once substituted by the hot application, and this should be persisted in for fifteen minutes every two or three hours. The hot water will relieve the stagnant condition of the corneal circulation

that has been induced by the intense chemosis of the bulbar conjunctiva, and the repair of the cornea thus favored.

Keratitis.—In treating disease of the cornea hot compresses are always indicated, never cold. As you know, the cornea is normally an avascular structure, and is dependent for its nourishment upon the tissues surrounding it. If these be diseased, a stasis in the nutritive supply of the membrane occurs, and ulceration ensues. The chief indication, therefore, in treating diseases of the cornea is to prevent this stasis. This is admirably accomplished by means of moist heat, provided it be properly applied. One of the most frequent forms of corneal ulceration that you will have to combat is phlyctenular keratitis. This disease occurs usually in children of a scrofulous diathesis, and there is no sadder sight, and no example more striking of the injury which is wrought by the ignorant application of remedies by the laity, than those employed in this disorder. It is a matter of frequent experience in the ophthalmic clinics to hear the mothers of such children recite with pride a list of all kinds of harmful and disgusting substances with which they have poulticed the eye—tea leaves, rotten apples, raw oysters, bread and milk, and potatoes are the favorite articles, and the persistency and the ignorance with which they are employed is most distressing to the intelligent practitioner. It may be well to state here, once for all, that poultices should never be employed in diseases of the globe itself, although they are at times of service in inflammations of the adnexa.

Avoiding the use of the poultice, therefore, moist heat is best applied in diseases of the cornea by the ordinary compress, which should be maintained for ten or fifteen minutes at a time four or five times daily.

Hot compresses will be found to be an excellent stimulant to sluggish ulcers, and will also hasten the absorption of nebulæ. A few drops of scalding water, applied directly to a micotic ulcer, will exert a powerful antiseptic action upon it. In interstitial inflammation of the cornea also, when the whole ureal tract is inflamed, and the ciliary body especially is hyperemic, much relief will be afforded by the prolonged and unvarying use of hot fomentations, for three to eight hours daily at periods of every two hours. Indeed, where posterior synechiæ have not yielded to atropine, and where there is a rise in

the intraocular tension, the mydriatic will have to be withdrawn, and you will be compelled to rely solely upon hot applications and the administrations of an alterative internally to lessen the inflammatory condition.

Pannus.—In the early stages of granular conjunctivitis hot water is frequently badly borne; as soon as the vascular condition of the cornea manifests itself, however, hot compresses should be inaugurated, for the inflammatory reaction which they occasion is frequently sufficient to cause the disappearance of the pannus.

One of the most distressing symptoms of phlyctenular disease is the photophobia and spasm of the orbicularis which it occasions, and you will often encounter great difficulty in applying the proper remedies to the eyes until you have caused these to subside. In urgent cases the eyes may sometimes be opened by immersing the entire head of the child in a bucket of cold water, the sense of suffocation and shock causing it to open its lids reflexly as it gasps for breath. An equally effective and less heroic measure consists in permitting a few drops of ice water to trickle between the lids, which are gently coaxed apart by the surgeon's fingers.

Iritis.—It is a matter of experience that dry heat is more efficacious than moist in soothing the pain of neuralgia. We will also find that in cases of iritis, when there is little or no secretion except the tears of reflex irritation, the dry compress is the most efficacious, while in iritis secondary to inflammations of the cornea we will have recourse to the moist compress.

In addition to its action upon the bloodvessels of the iris and ciliary body, the hot compress is invaluable on account of its increasing the absorption of drugs which are administered for the purpose of dilating the pupil. You will frequently find that mydriatics exert but little influence over the pupil in cases of iritis, even when the synechiæ are not very tenacious. Leeching and cocaine will partly overcome this, but there is nothing so efficacious as bathing the eye with water as hot as it can be borne about ten minutes before the instillation of the mydriatic.

MISCELLANEOUS APPLICATIONS.

Traumatisms.—After penetrating wounds of the eye, par-

ticularly when the iris and the lens have been injured, and you have to deal with the complication of plastic iritis and traumatic cataract, in addition to the other treatment, which you will at once institute, you will find the continuous use of the ice compress to be a potent agent in combating inflammatory reaction and in preventing the invasion of noxious germs by reducing the temperature of the parts.

Suppurative Panophthalmitis.—Hot applications are grateful from the very onset in this class of cases and may be applied almost continuously. A convenient and satisfactory method is to cover the eyes with absorbent cotton that has been soaked in bichloride solution (1:3000).

Muscular Asthenopia.—The pain arising from this condition is often allayed and the symptoms at times made to disappear by the use of hot compresses, the heat usually increasing the contractile power of the weak muscles.

Diseases of the Inner Coats.—If there is any tendency to disease of the deeper structures of the eye, such as retinitis or neuritis, it is well to avoid the use of hot applications for fear of causing further mischief by increasing congestion in these delicate membranes.

THE USE OF EXTRACT OF SUPRARENAL CAPSULE IN THE EYE. W. H. BATES, M.D., (*New York Medical Journal*, May 16, 1896).

The aqueous extract of the powder of the desiccated suprarenal capsule of the sheep is a powerful astringent and hæmostatic. When it is instilled into the eye the conjunctiva of the globe and lids is whitened in a few minutes. The effect is very decided. None of the usual astringents, including cocaine, can produce such an astringent effect. In normal eyes the extract whitens the conjunctiva and sclera when used in very weak solutions—less than one per cent. The effect is increased by repeated instillations or by the use of stronger solutions. In eyes very much congested from inflammation, the extract produces its astringent effect.

Visible bloodvessels on the cornea from specific keratitis or from trachoma disappeared from view completely after the extract was used. An eye with a foreign body on the cornea was whitened. During operations on the ocular muscles, ten-



FIG. 1.



FIG. 3.



FIG. 5.

FIG. 2.



FIG. 4.

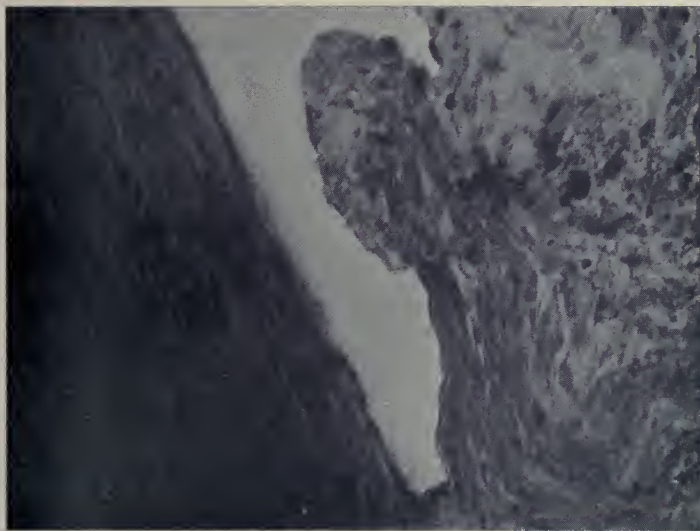


FIG. 6.





otomy and advancement, the extract whitened the eyeball. The extract is not irritating. It generally produces a cooling sensation when dropped into the eye. It does not dilate or contract the pupil, and it has no effect on the accommodation. A tolerance was not established in two cases in which the extract was instilled into the eye several times daily for more than three months.

A third patient used the extract daily for more than twelve months, and the extract whitened the eyeball and palpebral conjunctiva as well at the end of the twelve months as at the beginning. The astringent effect of the extract on the conjunctival vessels is temporary—usually in an hour the eye looks as it did before the extract was used.

Preparation.—The powder of the desiccated suprarenal gland of the sheep is placed in cold water and allowed to stand a few minutes. The fluid is filtered through filter paper and evaporated to dryness at a temperature below 105° F. The residue is the aqueous extract. It requires sixteen ounces of the powdered desiccated glands to make an ounce of the aqueous extract.

My observations on the use of the extract in the eye were made during the past two years. As this use of it is entirely new, it was necessary to be very cautious. I have had no disagreeable effects from it and my confidence in it increases constantly. It is the only remedy of which I know that is purely an astringent. It is the ideal hæmostatic. The following is a partial list of diseases of the eye in which the extract has whitened the conjunctiva and sclera: Trachoma, acute catarrhal conjunctivitis, chronic conjunctivitis, phlyctænular conjunctivitis and keratitis, interstitial keratitis, rheumatic and syphilitic iritis, episcleritis, irido-cyclitis, sympathetic ophthalmia, atrophy of the globe, secondary glaucoma, etc.

From among the cases receiving this treatment we quote the following:

CASE 2.—A severe phlyctænular conjunctivitis was treated at the dispensary. The eyeball was red and showed no white sclerotic at all. At the end of five days there was no change. A few drops of the extract whitened the eyeball at once. Two days later the eye was entirely well. In this case the extract seemed to produce a prompt and decided benefit. The patient had other treatment besides.

CASE 5. *Obstinate Iritis Following a "Needling."*—After three months' treatment with atropine and hot water the eye was still red and painful. A few drops of the extract applied at intervals of a few minutes whitened the eye and relieved the pain. There was no relapse a year later. The astringent property of the extract was undoubtedly of benefit in this case. Cases of iritis in general are undoubtedly benefited by the extract.

But as the extract is only an astringent, it can not take the place of atropine and constitutional remedies.

ON MOVEMENTS OF THE EYELIDS ASSOCIATED WITH MOVEMENTS OF THE JAWS AND WITH LATERAL MOVEMENTS OF THE EYEBALLS.

HARVEY FRIEDENWALD, M.D. (*Johns Hopkins Hospital Bulletin*, July, 1896).

Quite a number of associated movements of the upper lids have been described; these vary greatly. In some, there was ptosis, but in others the same peculiar association of movement existed without ptosis. The lid movements occurred in some in association with opening and closing or with lateral movements of the jaws, in others they were associated with lateral movements of the eyeballs.

The author gives the histories of eight cases in which the upper eyelids are raised in attempts at adduction and droop in abduction, and fifteen cases in which the opposite conditions prevail. In one case there was relaxation of the right lid in adduction and of the left in abduction. Taking the first set of cases into consideration, we find that six of the eight cases are males; that in five the condition was acquired, and in three it was congenital; in one there was no paralysis of the ocular muscles, in four the ocular-motor nerve was completely paralyzed; in one the superior rectus and the levator; and in one there was double oculo-motor paralysis; and in one both superior recti were affected.

In the last named case all external movements produced nystagmus.

In two of the cases the pupil contracted during adduction, and in one there were rhythmic movements of the lid and pupil.

In the second group of fifteen cases (in which the lid is raised in abduction and droops in adduction) six were males and nine females.

The condition was congenital in twelve, in two it was acquired in infancy; in the remaining case it was acquired after oculo-motor paralysis, and disappeared in a year. There was no paralysis in four cases; the external rectus was paralyzed in ten cases, and in four of these the internal was also paretic. In one case both external and internal recti were paralyzed. The affection was limited to one eye, excepting in one case in which both eyes were affected.

In seven cases there was enophthalmus. In one of the cases there is a note that the drooping of the lid also occurred when the eyes were converged; while in another the adduction in convergence did not produce drooping, while adduction in lateral movements did.

In eleven cases the left eye was affected, in two the right eye, and in three both eyes. Finally there was one case which belongs to both classes. In this both external recti were affected, and there was slight ptosis.

It is evident that while the oculo-motor nerve is the one paralyzed in the first class of cases, it is the abducens which is chiefly affected in the second class.

No satisfactory explanation of these conditions has been given. It is probable that when acquired after paralysis they belong to the same category as those associated movements observed in hemiplegia. For the larger number, the congenital cases, we may assume the existence of abnormal relations of the cerebral nuclei and association fibres.

SPONGE GRAFTING IN THE ORBIT FOR SUPPORT OF ARTIFICIAL EYE. E. OLIVER BELT, M.D. (*Ophthalmic Record*, September, 1896).

After an eyeball has been removed and an artificial eye inserted very frequently it is not as prominent as the good eye. It has a *sunken appearance* which attracts attention at once to the fact that the eye is artificial.

One of the most satisfactory operations heretofore practiced is that known as Mule's operation, which consists in the

evisceration of the contents of the eye, and the insertion of a hollow glass globe in the sclerotic. This is sewed in, and proves fairly satisfactory, but there is some danger of the globe being broken, and occasionally the stitches come out and the globe escapes. There is also the risk of sympathetic ophthalmia where the entire eyeball is not removed. To obviate these difficulties and at the same time secure a full orbit, I have devised a method of sponge grafting, which seems to meet the requirements without the disadvantage of other methods. The operation is performed as follows: The eyeball is removed by the ordinary method under strict asepsis. After all hæmorrhage is arrested the socket is washed out with formalin solution 1 to 1,000, followed by sterilized salt solution. A globe of fine soft sponge, about three-fourths the size of the eyeball (previously sterilized in five per cent. formalin solution and rinsed in the salt solution) is then inserted into the socket, or capsule of Tenon. The conjunctiva is brought together and sewed with rat-tail sutures. The eyelids are then closed with compress and bandage. In a few weeks the sponge is filled with new tissue, which in time becomes firm, solid flesh, making a full orbit and a fine support for the artificial eye. The sponge fibres are apparently absorbed.

A NEW METHOD OF TREATING PTERYGIUM.

ANTON COE, M.D. (*Annals of Ophthalmology and Otology*, Vol. V, No. 11).

Having disliked all prescribed methods for treating pterygium I have often thought that there must be a better and simpler way and after a careful reading of the literature upon this subject, I am satisfied that the whole trouble lies alone in the apex, and that the vascular supply is not a part of the disease, but only an effect, as it but answers the call of the apex for blood, and thus reasoned, that if the apex could be destroyed the vascular supply would cease, from disuse. The correctness of my reasoning will be seen by the following cases:

Case 1.—Mr. E. H., white, 64 years of age, had a *pterygium crassum* on temporal side of left eye, and a *pterygium tenue* on the temporal side of right eye. They had been

treated for some time by the usual methods with no good effect. Operation was advised, but as he was a very busy man he could not spare the time. I told him I could operate in a way that would not interfere with his occupation and so proceeded. The eye being placed under the influence of a two per cent. solution of cocaine, applied to the apex only, I heated to redness a platinum probe and applied it to the lower half of apex, leaving the upper and deeper portions for the third and fifth days. On seeing the eye again on the third day I was surprised and delighted to find that the vessels feeding the lower portion first cauterized were disappearing, and they so progressed until six days after, when there was scarcely a trace of the former trouble.

Case 2.—Mrs. B. A., 42 years of age, appeared with *pterygium tenue* on the right eye; nasal side. Five months after cauterizing the apex there was no trace of the pterygium. As I had not touched the vessels in either case, but simply removed the cause by cauterizing the apex, does it not clearly show that the disease lay wholly in the apex, and that we are guilty of an error of judgment when we remove the vascular supply as a part of the disease? The advantages of this method are, first, that the patient can be treated while sitting erect in a chair; second, there is no interruption to business or free use of the eye, and third, all signs of the growth soon vanish to return no more.

MISCELLANY.

PROFESSOR W. UHTHOFF, of Marburg, has been called to the Chair of Ophthalmology at the University of Breslau in place of Professor R. Foerster. We hear that Dr. Th. Axenfeld will accompany him to his new home.

PROFESSOR CARL HESS, of Leipzig has been called to the Chair of Ophthalmology at the University of Marburg.

WITH REGRET we have received the last number of the *Ophthalmic Record*, published by Dr. G. C. Savage, of Nashville, Tenn. The Doctor announces that if enough subscribers wish it, this journal may be brought to life again under a new management at Chicago.

SOCIETY FOR

OPHTHALMOLOGICAL

KING

FRIDAY, JULY

The Bowman Lecture on Vision

H. SNELLEN.

DR. H. SNELLEN, Professor of Ophthalmology at the University of Utrecht, delivered the Bowman Lecture. After paying a tribute to the memory of Sir William Bowman, and to his powers as a brilliant operator and scientific physician, Professor Snellen proceeded to consider the demands made by the State on ophthalmic surgeons at the present day in regard to the examination of candidates for the public service, and pointed out that England had taken the lead among nations in this matter. The Ophthalmological Society and the British Medical Association, having each of them investigated and reported on the subject, had succeeded in impressing the authorities with a knowledge of its importance. As tending to throw light on some of the questions of vision which were still undetermined, the lecturer went on to describe the result of some investigations on vision and retinal perception which he had recently been making. Alluding to the contention of Vierordt and others that it was better to express the acuity of vision by the square of the diameter of the retinal image rather than by its linear measurement, Dr. Snellen pointed out that while the recognition of form depends on more complicated considerations than can be expressed by the simple linear measure, yet the value of perception is not fully represented by the square measure of the retinal image, inasmuch as the perceptivity of the fovea is not equal all over, but diminishes from the centre outwards. Moreover, the act of vision was not confined to the perception of a stationary retinal image, because the movements of the eye brought every part of the image over the centre of the fovea, and each muscular movement represented

a linear measure. One of the most important questions was the dependence of acuteness of vision on the amount of illumination, and the difficulty of stating the amount of illumination, especially by daylight, which varies so constantly. A fresh series of observations had been recently made on this subject at Utrecht, under Professor Snellen's direction. The observations were carried out by the light of a gas flame kept at a constant pressure by a special regulator, and passed over benzine to secure constancy of illuminating power. The photometer of Leonhard Weber was used, by means of which it was possible to estimate the amount of light on any given surface, without regard to the source of light. It was found that when the illumination reached a certain degree of intensity the unprotected eye was unconscious of any further increase of luminosity; the maximum of vision was reached with a luminosity of 30 to 50 metre candles. With decrease of illumination the vision soon diminished, and changes in intensity were quickly perceived. The acuteness of binocular vision was higher with every degree of illumination than that of monocular vision, but the difference was not equal to doubling the intensity of the light, as had been stated. A further series of observations was made with the photometer in order to arrive at the intensity of daylight at different times in various workshops. In a printing business the want of light impeded the work of compositors when it fell below 15 metre candles; if at dusk the intensity did not fall below 15 metre candles there would be in full daylight an intensity of 30 to 50 metre candles, direct sunlight being excluded; for coarser kinds of work, like that of carpenters and blacksmiths, a minimum of 10 metre candles was enough. In the new Ophthalmic Hospital at Utrecht special arrangements of lighting the operating room had been made; the highest demands on the visual powers were made where operations on the eye had to be performed. Considering that the visual power is heightened by adaptation of the eye for a weaker light than that falling on the observed object, the walls, ceiling, and floor of the operating room had been painted black, and light was only admitted through a window directly on to the patient. By this means the operator had at his disposal the maximum of his vision; there was the additional advantage that the troublesome reflections from the cornea were avoided, and the patient's gaze

could be kept fixed in any direction by the flame of a candle which could be well seen against the dark background of the walls. The adaptation of the eye to light was next considered. Like the size of the pupil, the sensibility of the retina changed under the influence of light and darkness. The time required for adaptation corresponds with the period of anatomical changes in the retina—namely, the formation and disappearance of the visual purple, the changes in the pigment cells and cones. Observations were made with a small screen illuminated by an electric spark of great intensity. The moment the light flashed forth there appeared on the screen a bright flood of light, which rapidly increased in intensity, and then faded away in about a corresponding period of time. During the increase in intensity the light had the same color as the screen, during the decrease it had the opposite color. This occurred with all colors, provided they were sufficiently saturated. Mixed colors were seen as such, followed during the decrease by opposite mixed colors. It was found that absolute white is very rare; white paper has always a yellow or blue tint, and dead black appears as saturated blue followed by yellow. These two phases were succeeded by a third phase of much longer duration; the after-image corresponding to this third phase was very feebly colored, and was mostly of a reddish brown color; as long as this red-brown after-image persisted there was anæsthesia for objective light, such as was given by a plate of luminous paint. The third phase corresponds to the more commonly studied after-images, which arise by long continued looking at a bright object and its projection on a white surface. This interesting succession of light and dark of the after-image can also be seen on looking at a very feeble light in a darkened room; if this be done the light slowly fades and disappears altogether, but with the slightest movement of the eye it suddenly reappears, owing to its falling on a fresh part of the retina. If the light be looked at while movement of the eye is carefully avoided after disappearance, it slowly and gradually returns to its former brightness, and then slowly fades again, so that a continual slow succession of light and darkness can be observed. These phenomena are to be looked upon as an example of the reciprocal effect of the adjoining parts of the retina on each other; according to Hering's theory of color vision there is a continu-

ous reciprocal influence between the spot in the retina where the image is observed and the adjoining parts, due to a modification of the visual substance, which undergoes alternate assimilation and dissimilation. Assimilation and dissimilation can temporarily become equally great, and by reciprocal influence neutralize each other.

FRIDAY, JULY 3, 1896

EDWARD NETTLESHIP, F.R.C.S., President, in the Chair.

Experimental Research on the Course of the Optic Nerve Fibres.

By DR. C. H. USHER and DR. GEO. DEAN.

The method employed was that of wounding the retina and tracing the degeneration in the nerve fibres by means of Marchi's osmium bichromate method. The wounds were made with a Graefe's knife or galvano-cautery, the ophthalmoscope being used to enable the operator to produce the lesion in the part of the retina selected. The first part of the communication dealt with the results obtained in a number of rabbits. As seen by the ophthalmoscope the wounds in the fundus presented the appearance of a white elongated gap with sharply defined edges. Its length was from about $\frac{3}{4}$ to $1\frac{1}{2}$ optic disc diameter. Among the lesions was included division of the anterior and posterior bands of opaque nerve fibres. In all the cases a tract of degeneration was found in the nerve corresponding to the wounded retina. The degeneration occupied a situation in the nerve corresponding to the part wounded, for example a lesion in one quadrant of the retina caused a degeneration in the corresponding quadrant of the nerve. The degeneration maintained the same situation throughout the whole length of the nerve. In the cases where the opaque bands were incised the degeneration was found to be denser than in the cases where other parts of the retina were wounded. In every case minute black points were found in the nerve of the eye which had not been wounded. These points were diffusely scattered, and much less prominent than those on the side of the lesion; they were found to stand in direct ratio to the amount of degeneration in the nerve of the

operated eye. The second part of the communication consisted of results obtained in the case of a monkey, in which a lesion by means of the galvano-cautery was made between the optic disc and the yellow spot. A well-defined area of degeneration was found in the corresponding optic nerve. It lay externally in the anterior part of the nerve, whereas it occupied a central position in the posterior part of the nerve. Its shape in the anterior part of the nerve was that of a narrow isosceles triangle, with its base at the periphery and its apex towards the central vessels. Behind the entrance of the retinal vessels the area gradually became central; in this situation it assumed a somewhat irregular form with angular projections; near the chiasma it was still in the centre of the nerve, and crescent-shaped. In the other optic nerve small black points were present similar to those found in the case of the rabbits. The interest of this case in relation to the cases of toxic amblyopia and in relation to the course of the macular fibres was indicated.

MR. C. D. MARSHALL said that the results of Marchi's method of staining nerve were not always reliable; black dots were to be found in nerves which were not degenerated. But they readily followed lesions of nerves, and were valuable as a sign of degeneration after lesion.

Congenital Hydrophthalmos. By MR. F. R. CROSS.

Enlargements of the eyeball of this nature depend on an increase of the intraocular tension during youth from whatever cause, with consequent expansion of the corneo-scleral envelope and other ocular tissues. Hydrophthalmos in the young is equivalent to glaucoma in the old. Many of the cases of so-called buphthalmos are but a later stage of staphyloma in childhood; one true form of secondary glaucoma in children results from complete seclusion of the pupil, with bulging of the iris and blocking of the filtration angle. The closure or compression of the filtration angle appears to be the important element in nearly all cases of glaucoma. One of the reasons urged against this theory is the presence of the deep anterior chamber in hydrophthalmos, and the apparent wide separation between the cornea and iris. Careful microscopic examination of sections of hydrophthalmic eyes however show that although the anterior chamber is deep, either the

iris is adherent at its base to the cornea, or strands of tissue are present there blocking up the angle, and indicating a previous adhesions which had broken down. Other theories had been propounded to account for this condition, but they were not sufficient alone, or the data on which they were founded could not be verified by subsequent observers. Thus it was shown by an examination of one hydrophthalmic eye by Durr and Schlegltendal that the vortex veins of the choroid were distended; but an examination of the author's specimens showed a tendency to atrophy of the choroid, not to its cystic degeneration or to distension of its veins.

MR. TREACHER COLLINS pointed out that in the cases of buphthalmos which did not follow on any known antecedent disease the symptoms always dated from birth, and that, therefore, they must look for some congenital malformation as the original cause of the changes which ensued. He showed that sometimes the iris failed to become completely separated from the posterior surface of the cornea, and that a congenital anterior synechia resulted. If such an adhesion existed at the periphery of the anterior chamber it would tend to obstruct the exit of fluids through the filtration area. In several specimens of buphthalmic eyes he had examined he had found an adhesion of the root of the iris to the cornea. In some cases of buphthalmos the tension became normal, and the progress of the disease was arrested; he suggested that in them the enlargement of the globe and the dilatation of the anterior chamber caused the adhesion of the iris to become stretched and sometimes to give way.

MR. PRIESTLEY SMITH thought the specimens showed undoubted obstruction of the filtration angle; the evidence to his mind was quite convincing that the increased tension was due to closure of the angle of the anterior chamber. He had lately visited a blind school where he found 6 children out of 125, or about 5 per cent., blind from congenital hydrophthalmos. He pleaded for the use of the term congenital glaucoma, as these cases undoubtedly belonged to the same group as glaucoma in the adult.

Tension in Cases of Intraocular Growth. By MR. C. DEVEREUX MARSHALL.

With a view of further elucidating the causes of glaucoma

in cases of intraocular neoplasms, 100 cases had been examined, including (A) 53 in which the choroid only was affected; (B) 28 in which the ciliary body or iris was involved; and (C) 19 in which a glioma of the retina existed. Series A: In the first group the intraocular tension was as follows: (1) Increased tension in 36, or 67.92 per cent.; (2) Normal tension in 16, or 30.18 per cent.; (3) ? Diminished tension in 1, or 1.88 per cent. Microscopically it was found that 27 cases out of the 36 in which the tension was increased the angle of the anterior chamber was closed. In 7 the angle was restricted, and in 2 it was not noted. Of the 16 cases in which the tension was normal, the angle was found open in 14, and in 2 cases the condition was not stated. There was no case in which the tension was undoubtedly less than normal, 1 was noted as (?), and in this case the angle was open. Series B: In this group in which the ciliary body was affected the following conditions of tension existed: (1) Increased tension in 10, or 35.71 per cent.; (2) Normal tension in 14, or 56 per cent.; (3) Diminished tension in 4, or 14.28 per cent. Of the 10 cases in which the tension was increased, the angle of the anterior chamber was closed in 6. In 2 it was much narrowed, and in 1 case it was open. Of the 14 in which the tension was normal, the angle was open in 10; in 1 it was narrowed; in 2 it was closed; and in 1 the condition was not stated. Of the 4 cases in which the tension was below normal, the angle was open in 2; in 1 it was somewhat narrowed with a shallow anterior chamber; and in 1 the angle was closed on one side and doubtful on the other, but the ciliary body was to a great extent destroyed by the growth. Series C includes 19 cases of glioma of the retina, and the condition of the tension was as follows: (1) Increased tension in 7, or 36.84 per cent.; (2) Normal tension in 10, or 52.63 per cent.; (3) Diminished tension in 2, or 10.53 per cent. Of the 7 cases in which the tension was increased, the angle was closed in 3, narrowed in 2, open in 1, and in 1 the condition was not stated. Of the 10 cases in which the tension was normal, the angle was open in 7, narrowed in 1. In 1 the globe was nearly full of growth and there was no anterior chamber, and in 1 the condition of the angle is not noted. Of the 2 cases in which the tension was diminished, the angle was open in 1, and in the other the globe was shrinking after having perforated. The vast majority of these cases prove the rule

that the intraocular tumor bears a direct relation to the condition of the angle of the anterior chamber, and also that it is by no means uncommon to have normal or even diminished tension in eyes containing new growths. There are one or two exceptional cases in which the tension is increased when the angle is open, and normal or diminished when the angle is closed, but these are all complicated by a gross affection of the ciliary body, leading either to a considerable diminution of its normal functions, or else probably to the opening of secondary channels through which fluid can escape from the globe.

On the Employment of Electrolysis in the Treatment of Detached Retina. By MR. SIMEON SNELL (Sheffield).

He stated that the recent discussion at this Society indicated that the treatment of detached retina was still regarded as unsatisfactory. Occasional good results were doubtless obtained. A patient he operated upon many years ago by sclerotic puncture, was, he understood, following his occupation, and was dependent upon that eye. He alluded to Terson's advocacy of electrolysis in detached retina. Mr. Snell had employed it in three instances. The first in a hopeless case, simply to test the method, but the detachment was reduced; the second, an extensive detachment had been materially improved in lessening the detachment, increasing the size of the field and considerably improving the vision; and the third resulted in a practical improvement, a much enlarged field, and also improvement of vision from fingers indistinctly to $\frac{15}{60}$. It was too early to state the final result yet. Mr. Snell thought the method was worthy of trial.

Card Specimens.

MR. ADAMS FROST: Pulsating Exophthalmos Undergoing Spontaneous Cure. MR. HARTRIDGE: Slight Buphthalmos and Deep Cupping and Raised T. in a girl aged 9. MR. KENNETH CAMPBELL: Infecting Chancre of Eyelid. MR. PRIESTLEY SMITH: Scheme for the Examination of Ophthalmic Cases. MR. LANG: Double Optic Neuritis.

BOOKS AND PAMPHLETS.

TRAITÉ D'ELECTROTHÉRAPIE OCULAIRE PAR LE
DR. P. PANSIER. ("Treatise on Ocular Electrothera-
peutics.") By A. MALOINE, Paris. 1896. Price, 6 francs.

This is an exhaustive treatise on the subject of ocular therapeutics based apparently on a long series of experiments in clinical work and is very interesting reading. If the author's experiences are shared by others, this subject will surely deserve in future considerably more of the attention of oculists, as, it seems, there are but few affections of the eye which cannot be beneficially influenced by electricity. The preface of this book is written by Dr. Valude.

DIE AUGENAERZTLICHEN OPERATIONEN. By DR.
W. CZERMAK. ("Operations of the Eye.") Nos. 8 and 10.
Wien, Carl Gerold's Söhne. 1896. Price, 4 marks.

These two numbers, in the same excellent manner as did their predecessors, treat of the operations on the muscles of the eyeball and on the eyeball itself. The author announces that by his removal to Prague he has been prevented from finishing the work, but promises the last numbers in the near future.

HEILUNG HOECHSTGRADIGER KURZSICHTIGKEIT.
("Cure of Myopia of Highest Degree," etc.). By DR. V.
FUKALA. With 28 Illustrations. Franz Deuticke, Leip-
zig and Wien. 1896. Price, 4 marks.

In this pamphlet the author, whose name will forever be connected with the systematic removal of the crystalline lens from highly myopic eyes, has collected his views concerning the advisability of the operation and his results. This very interesting part is followed by a number of deductions and rules for the quick determination of the length of the axis, the optical constants and the size of the image. No one interested in this subject should fail to read Fukala's work.

DIE FUNKTIONSPRUEFUNG DES AUGES. ("Functional Examination of the Eye.") By DR. ANTON ELSCHNIG. With 31 Illustrations. Franz Deuticke, Leipzig and Wien. 1896. Price, 4 marks.

This manual, addressed to students and physicians, gives in a clear and concise style an excellent exposé of the different aims and methods of the examination of the functions of the eye.

The first part is devoted to the methods of examining the refraction and accommodation, the visual field, color- and light-sense, etc., while its second part treats of the functions of the iris, the eyelids and the external eye muscles. To this is added a chapter on simulation.

While, as far as we can see, not containing anything new, this manual surely appears to be an eminently practical one.

EIN BEITRAG ZUR KENNTNISS DER TUBERCULOSE DER AUGAPFELBINDEHAUT. ("Contribution to the Knowledge of the Tuberculosis of the Conjunctiva.") By DR. E. FRANKE. Alfred Langkammer, Leipzig. 1896.

A carefully observed case of conjunctival tuberculosis in which the local destruction and removal of the infected parts seems to have led to a complete cure.

The report of this case is followed by the discussion of the Literature on this subject.

UEBER CONTRACTUR- AND LAEHMUNGS-ZUSTAENDE DER EXTERIOREN UND INTERIOREN AUGEN-MUSKELN BEI HYSTERIE. ("Contraction and Paralysis of the External and Internal Eye-Muscles Due to Hysteria.") By DR. M. NONNE and DR. O. BESE-LIN. Alfred Langkammer, Leipzig. 1896.

This is a very interesting contribution to the study of disturbances of the motility of the eyes as they are observed in hysterical individuals, with a careful report of eight cases observed by the author.

ALT.

PAMPHLETS.

"Neoplasms of the Ear." By Dr. E. B. Dench.

"Eye-Symptoms in Nephritis." By Dr. D. Cheatham.

"Hydro-Galvanism of the Urethra." By Dr. R. Newman.

"Silver and Silversalts as Antiseptics." By Dr. B. Credé,

"Keratitis Interstitialis Annularis." By Dr. H. Moulton.

"The Development of the Test-Card." By Dr. F. K. Smith.

"Experience With Sero-Therapy in Tuberculosis." By Dr. P. Paquin.

"What is the Matter With the American Stomach?" By Dr. J. K. Kellogg.

"The Relations Existing Between Oculists and Opticians." By Dr. F. Allport.

"Management of Tuberculosis in the Ashville Clinic." By Dr. J. A. Burroughs.

"The Mutual Relations of the Profession and the State." By Dr. W. S. Foster.

"Sponge Grafting in the Orbit for Support of Artificial Eye." By Dr. E. O. Belt.

"The Technics of the Trial Case; or Subjective Optometry." By Dr. A. E. Davis.

"Thirty-Seventh Yearly Report of the Nederlandsch Gasthuis for Ooglijders." July 4, 1896.

"Mastoid and Intracranial Complications of Middle-Ear Suppuration." By Dr. E. B. Dench.

"A Case of Epilepsy and Migraine, Apparently Depending Upon Eye-Strain." By Dr. F. W. Marlowe.

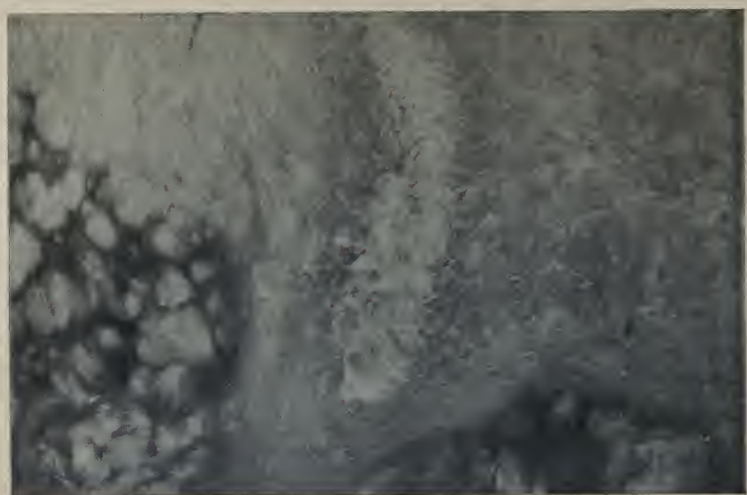


FIG. 1.

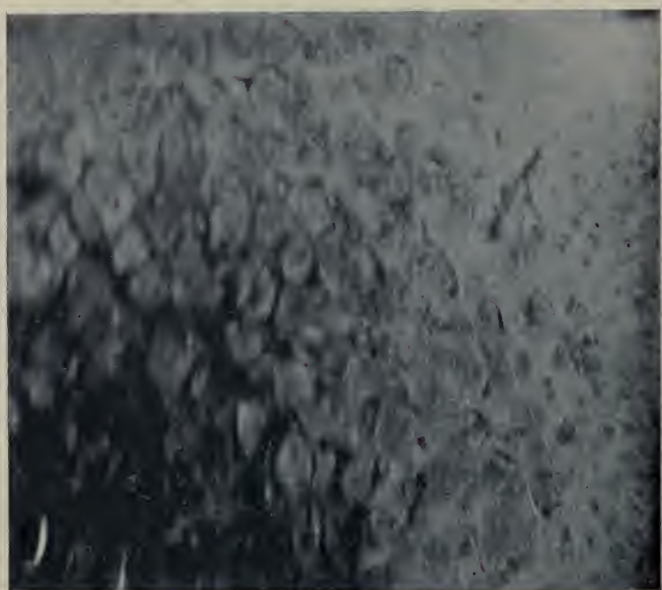


FIG. 2.



FIG. 3.

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NO. II.

ORIGINAL ARTICLES.

XANTHELASMA TUBEROSUM OR MOLLUSCUM CONTAGIOSUM?

BY ADOLF ALT, M.D., ST. LOUIS, MO.

[*With Micro-Photographs.*]

In Vol. VII of the *Archives of Ophthalmology and Otology* (page 366), under No. XVI of a series of contributions to the pathological anatomy of the human eye, I published an article on "Xanthelasma Tuberosum Palpebræ."

The characteristic changes found in four such tumors I then described as follows: "The epithelial covering of the tumors is in all cases thicker than normal. In one case it is perfectly transformed into horny scales. The subcutaneous connective tissue, which is also considerably thicker than normal, consists of very coarse fibres and has very few blood-vessels. Between the fibres there is a considerable number of cells filled with fine molecules of a yellowish brown pigment and mostly having several offsets. The orifices of the sebaceous glands seem to be all obliterated.

"The main part of the four tumors is composed of large, vesicle-like, round and oval cells with an oval nucleus and several nucleoli. Their cell-body can not be tinted by any of the common staining materials, the nucleus assumes only a very light, the nucleolus a darker color. The cells, therefore, appear akin to fat-cells and colloid bodies. I consider them

essentially the same and am inclined to believe that they are the metamorphosed epithelial cells of the sebaceous glands. These cells are divided into clusters of a varying but mostly of a round shape by bands of tough connective tissue, which show no fatty degeneration, as has been described by some authors."

When I reported these researches the literature on this subject was but very scant and it does not seem to have grown very much since, at least in ophthalmic literature. Most textbooks mention only the clinical aspect of xanthelasma of the lids and a few speak of a fatty degeneration of the subcutaneous tissue as the cause of the clinical appearance.

I have since excised and examined two more such tumors, which were situated, in the characteristic manner, on the nasal side of the upper lids (both in females) and have found the same degeneration of the epithelial cells, which I still consider to be those of sebaceous glands. I may add to the foregoing description that the lobules into which the tumor is divided by connective tissue show that the degeneration of the epithelia is progressed farthest in their interior, while the peripheral cells may still appear normal. Furthermore, that the nucleus, during the degenerative process, is more and more pushed aside toward the periphery and that later on no nucleus is found. Where the cells are perfectly degenerated, the intercellular substance alone takes on the stain. (See Figs. 1 and 2. These photographs were taken from carmine-stained section made in 1877).

In the *Archiv fuer Augenheilkunde*, Vol. XXXIII, page 302, (German edition of the *Archives of Ophthalmology*), appears an excellent paper by Dr. Muetze, from the Eye Clinic at Marburg, entitled "A Contribution to the Knowledge of Molluscum Contagiosum of the Lids." This paper is accompanied by two very beautiful illustrations, from the description of which, I copy the following:

"Entering the tumor from without inward we see first several layers of normal surface epithelium which, however, loses its character more and more in the direction toward the centre of the tumor. The several cells, at first blue (stained with borax methylene blue) and regularly arranged, are now more irregular and of a lighter tint, except their nuclei which are stained normally and seem to be pressed toward the periphery.

The cells are larger and of varying shape. The nearer the centre, the larger and lighter they are; the nuclei remain visible in the periphery and are sickle-shaped. Finally in the secretory duct they lie in the intercellular substance perfectly unstained and of oval shape."

And again: "(Hæmatoxyline-Eosine). The lobule of the tumor has several layers of perfectly normal surface epithelium, its protoplasma stained light rose, the nuclei dark blue. In some of the cells farther inward, the protoplasma is stained darker on one side of the nucleus and granular. The nucleus is eccentric, as if pressed aside by the darker substance. In the cells further in, the protoplasma is still more degenerated. The cells are enlarged, their protoplasma is partly broken up into small round masses while it is still normal in the periphery. The nuclei are pressed still further toward the periphery, the nucleoli plainly visible. Further on the cells appear like large vesicles, their protoplasma is totally degenerated and forms large round lumps. Their nuclei are sickle-shaped and have reached the periphery. * * * In the next layers of cells the nuclei appear as dark peripheral stripes and finally they are no longer visible, etc."

Dr. Muetze kindly gave me some of his sections for study and I have photographed one of these stained with hæmatoxyline (and not fully decolorized) which is seen in Fig. 3.

From the description of the histological conditions in my cases of xanthelasma and in his cases of molluscum and from the illustrations, there can be no doubt, but that as concerns their histological elements, the tumors examined by us are absolutely identical. There is the same lobulated arrangement, there is the same degenerative process in the epithelial cells constituting the tumors, changing them to large vesicle-like bodies without nucleus and which take up no staining material.

To be sure, the clinical and macroscopical appearance of the tumors, as described by us, is not alike, and I certainly do not believe that the clinical diagnosis in any of the cases was incorrect. It would, then, appear from the foregoing, that certain forms of newformation in the lids which we clinically differentiate as xanthelasma and molluscum may appear identical in their histological structure. Molluscum contagiosum is probably not frequent in this country, at least, I have never

seen a case. Xanthelasma is not rare and once in a while a female patient will ask to have such a tumor removed. It will, therefore, be a comparatively easy matter to inquire further into the histology of xanthelasma. Further studies concerning the histology of molluscum contagiosum will be more difficult to make on account of the scarcity of the material, but they seem to be very desirable.

DEFECTIVE COQUILLE GLASSES.—A FREQUENT CAUSE OF ADDITIONAL IRRITATION TO WEAK AND INFLAMED EYES.¹

BY S. D. RISLEY, M.D.,

ATTENDING SURGEON AT THE WILLS EYE HOSPITAL, PHILADELPHIA; PROFESSOR
OF DISEASES OF THE EYE, PHILADELPHIA POLYCLINIC.

MR. PRESIDENT, AND FELLOWS OF THE COLLEGE:—For many years I have rejected the coquille smoked glasses as found in the market, because of their irregular curvature, and the frequent presence of small blisters in the glasses, or lines across their surface. The importance of these defects as a cause of continued irritation when used for protection from strong light, for sensitive and inflamed eyes, under treatment by mydriatics, was forcibly pressed upon my attention again within a few days.

A young lady was instilling a mydriatic for the correction of a refractive error. She was asthenopic in consequence of a hypermetropic astigmatism associated with a relative insufficiency of her interni, and complained that her smoked glasses aggravated her distress.

The optician had supplied her with smoked coquilles which proved to be lenses. The *right* glass was as follows:—.50 c. ax. 90° \bigcirc prism 1°. Base at 30°. The error of refraction in the right eye was corrected by +.50 s. \bigcirc +.50 c. ax. 90°. It will be observed that the —.50 c. in her smoked

¹Read in the Ophthalmological Section of the College of Physicians, Philadelphia.

glass raised the hypermetropia in the horizontal meridian to 1.50D. The left glass was — .37 c. ax. 45° \bigcirc prism 1° ; base at 150° . The error of refraction in this eye was also corrected by + .50 s. \bigcirc + .50 c. ax. 90° . It is obvious that these glasses must of necessity have added to her discomfort, since not only was the refraction error increased by them, but the relatively weak interni were loaded up by the prisms with their bases outward and upward.

I then requested Mr. Bonschur of the firm of Bonschur & Holmes, Opticians, to carefully measure for me, a dozen pairs of these coquille glasses sent to him in the original package from the manufacturers.

The following is the result reported :

- (1) R., — .25 s. \bigcirc pr. 1° base in.
L., — .37 s. \bigcirc pr. 1° base in.
- (2) R., — .75 s. \bigcirc — .50 c. ax. 120° \bigcirc pr. 1° base up.
L., — .50 s. \bigcirc — .37 c. ax. 135° \bigcirc pr. $.75^{\circ}$ base up.
- (3) R., — .25 s. \bigcirc — .25 c. ax. 40° .
L., — .37 c. ax. 140° .
- (4) R., + .25 s. \bigcirc + .25 c. ax. 70° \bigcirc pr. 1° base in.
L., + .25 s. \bigcirc pr. 1° base in.
- (5) R., — .25 s. \bigcirc — .25 c. ax. 90° \bigcirc $\frac{1}{2}$ pr. base out \bigcirc
1.50° pr. base up.
L., — .50 c. ax. 180° \bigcirc pr. 1° base up.
- (6) R., — .37 s. \bigcirc pr. 1° base out \bigcirc $\frac{1}{2}$ ° pr. base down.
L., — .25 s. \bigcirc — .37 c. ax. 25° \bigcirc pr. 1° base 133° .
- (7) R., — .25 s. \bigcirc $\frac{1}{2}$ ° base out.
L., — .50 c. ax. 90° \bigcirc pr. 1° base 115° .
- (8) R., — .25 \bigcirc — .25 c. ax. 90° badly scarred line
through centre at 75° .
L., — .25 \bigcirc — .25 c. ax. 75° \bigcirc 1° base out.
- (9) R., — .25 c. ax. 30° badly marred surface.
L., — .50 c. ax. 165° \bigcirc pr. $1\frac{1}{2}$ ° base out.
- (10) R., — .37 s. \bigcirc $.75^{\circ}$ pr. base out.
L., — .37 s. \bigcirc $.75^{\circ}$ pr. base in.
- (11) R., — .37 s.
L., — .25 s.
- (12) R., — .37 s. \bigcirc $.75^{\circ}$ pr. base in.
L., — .25 s. \bigcirc 1° pr. base up.

It will be observed that the package did not contain a sin-

gle neutral glass. Care was exercised to determine the refraction of the central part of the glass only.

A second dozen furnished by the Fox Optical Co. were measured by my assistant, Dr. Murphy, with the same general result; all of them proving to be either concave cylinders or sphero-cylinders, most of them being also prisms, and many of them marred by irregular lines across the surface of the glass.

It should be noted that these were not selected because of their defects, but were examined from the original packages containing a dozen each, as furnished wholesale by the manufacturers. Any careful inspection will show furthermore that they were no worse than the average smoked glasses furnished by the optician. It is obvious that such defects must prove an additional source of irritation to sensitive and inflamed eyes, and should be abandoned in practice, unless proved to be practically neutral in every case.

The only way to secure this is to have them carefully ground with parallel concave and convex spherical surfaces. The very slight refraction caused by such glasses may be disregarded, but their cost is practically prohibitive. Plane glasses with parallel surfaces should be employed instead. They have the added advantage, when mounted as spectacles, of falling readily between the correcting glasses and the eyes, so that they fit closely under the superior orbital rim, and thus exclude the sky and side lights more effectively than do the coquille glasses when worn in front of the correcting lens.

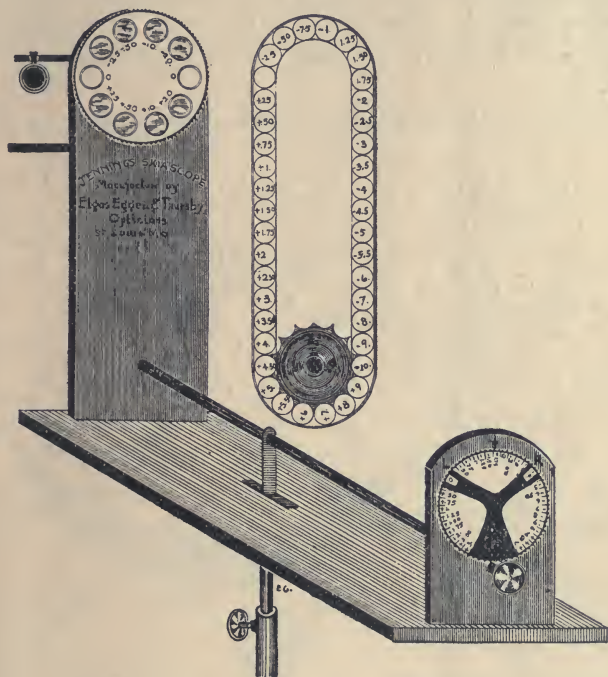
Care should be exercised to determine their parallel surfaces, and thus avoid the prismatic effect.

AN IMPROVED SKIASCOPE.

BY J. ELLIS JENNINGS, M.D., ST. LOUIS, MO.

Skiascopy or the shadow test is now recognized as the most valuable objective test for the estimation of errors of refraction. Its findings are so accurate and so much more rapidly attained than by the old method with trial lenses that

it has become deservedly popular with ophthalmologists. When, however, this method is used repeatedly each day the surgeon is apt to rebel against the loss of time and the fatigue occasioned by the constant change of lenses from box to trial frame. The skiascope here presented is designed to meet these objections and will be found a valuable aid to those who use skiascopy in their refractive work. The mechanism of the instrument is simple and was suggested to the writer by that of Morton's ophthalmoscope. It consists of thirty-nine lenses



inclosed in an endless groove and propelled by a strong driving-wheel situated at the lower end of the frame. A small rod runs the length of the table and is connected at one end with the driving-wheel and at the other with a small wheel within easy reach of the operator's hand. At the surgeon's end of the table and facing him, is a disc on which at a certain aperture (marked L or R according to which eye is under examination) is indicated the lens presented at the light hole. The red numbers represent convex and the white concave lenses. The lenses range from .25 to 9. D. plus and from .25 to 10. D.

minus. In addition to the lenses just mentioned, are others .25, .50, 1.0, and 2.0 D. plus and minus and a separate disc, any one of which can be put in front of the sight-hole without rotating the whole series of convex and concave. By means of this extra disc we can make combinations of .25 to 2.0 D. plus and from .25 to 3.0 D. minus.

In front of each sight-hole is placed a cylindrical device greases to hold cylinders (not shown in drawing). Attached to the back of the upright frame by means of a hinge is a rest and a movable blinder both of which swing to right or left as may be desired. The whole is mounted on a strong stand which can be raised or lowered to suit to accommodate each patient.

The essential advantages of this skiascope are as follows:

1. It saves time and fatigue in changing lenses.
2. It is under the control of the operator and indicates the lens in front of the sight-hole without his getting up.
3. The mechanism is simple and durable.
4. There are no shafts, uprights and indicators to obstruct the view of the operator.
5. It is only under exceptional circumstances that it is necessary to use the disc containing the extra lenses.
6. There is only one indicator and one wheel to turn.
7. Its handsome appearance and moderate price.

This skiascope is made by Elgas, Eggert & Thursby, Opticians, 520 Olive Street, St. Louis, Mo.

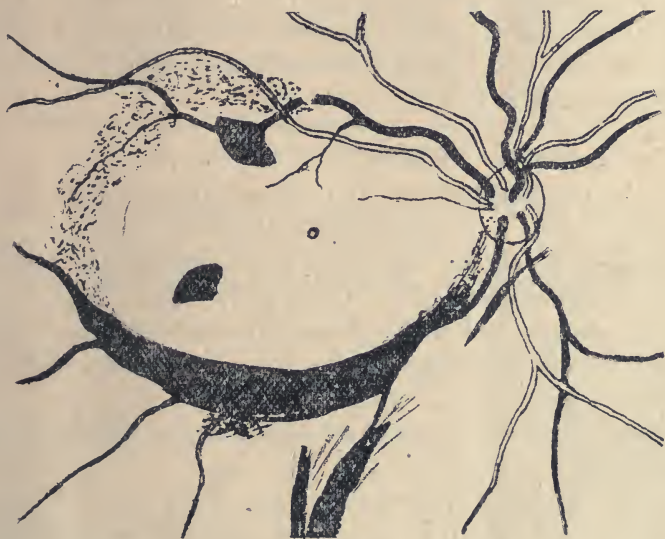
CLINICAL MEMORANDA.

By J. ELLIS JENNINGS, M.D.,

OF ST. LOUIS, MO

A CASE OF SUBHYALOID (?) RETINAL HÆMORRHAGES.

Mrs. C. X., colored, aged 27, came to Prof. Alt's clinic October 22, 1896, complaining of a red blur over the right eye. Her sight had been good until the previous night when, after intercourse with her husband, she noticed a red mist before the eye. The next morning she could see two red spots, which, by the afternoon, looked darker and not so large.



Right Eye. Sub-Hyaloid (?) Hæmorrhages.

The patient is rather slight, weighs 100 pounds, and is enjoying good health. Six years ago had rheumatism and two years back had an attack of la grippe. The heart and kidneys are normal.

L. V., $\frac{5}{V}$; R. V., $\frac{5}{LX}$. There is no scotoma at the macula but at several points close to it colors are recognized with difficulty.

Ophthalmoscopically, the fundus of the left eye appears normal. In the right eye the vitreous is found to be disorganized and filled with fine floating opacities. When the patient looks down a large blood clot is seen which, while moving about, appears to be anchored far forward in the ciliary region. A portion of this blood clot is shown in the lower part of the drawing. Below and close to the disc in the vitreous is a long narrow blood clot which is also held at one end and somewhat resembles a persistent hyaloid artery. Starting at the disc and following the course of the lower temporal vein is a very large hæmorrhage which covers the vessels, and probably lies between the internal limiting membrane of the retina and the hyaloid membrane. Two small but dense hæmorrhages are seen, one down and out from the yellow spot, the other up and out lying on the superior temporal vein. A slight effusion of blood connects the superior and inferior temporal veins thus almost completing a circle of hæmorrhage around the yellow spot.

COLOBOMA OF IRIS AND CHOROID.

Miss A. S., aged 7, was seen at the Mullanphy Hospital by Dr. S. Pollak and myself October 10, 1896. Her mother stated that shortly after the birth of the child she had noticed a black spot on the right eye and that the child's sight had never been good.

Mrs. S. has had seven children and claims that all but the patient have had good eyes.

V., O. D. $\frac{5}{LX} + 3.50$ cyl. ax. $180^\circ = \frac{5}{IX} -$.

V., O. S. $\frac{5}{LX} - 0.75$ sph. $\bigcirc - 2.50$ cyl. ax. $55^\circ = \frac{5}{XII}$.

The eyes appear rather small, the diameter of the iris being only 9 m.m. In the right eye there is a coloboma of the iris extending downward and slightly inward to the ciliary body (see Fig. 1). In the pupillary area and in the anterior portion of the lens is a thin pear-shaped opacity. With the ophthalmoscope a very large coloboma of the choroid is seen, which includes the optic nerve and extends downward and outward, as shown in the drawing, as far as the eye can follow.

The optic disc appears sunken and to the nasal side is a large patch of pigment. The vessels running to the normal

portions of the fundus are as usual, but those running over the coloboma are small branches of the main trunks which take on

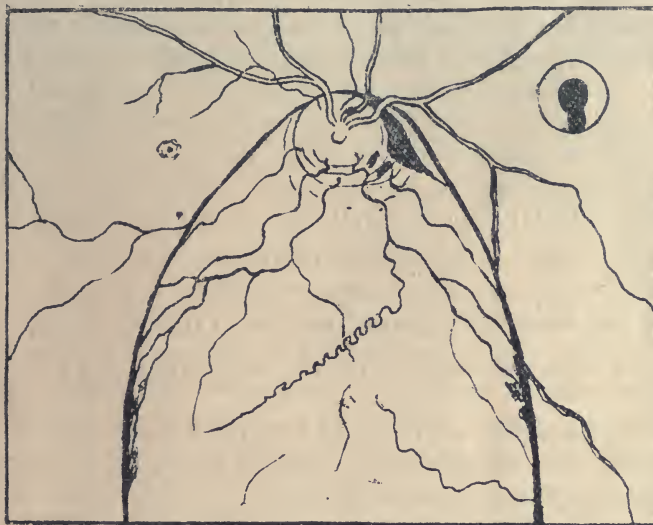


FIG. 1.—Right Eye. Coloboma of Iris and Choroid.

all sorts of twistings and disappear at the edge of the coloboma. In the left eye the iris is complete with the exceptions of a slight nick at the lower edge of the pupil and from there

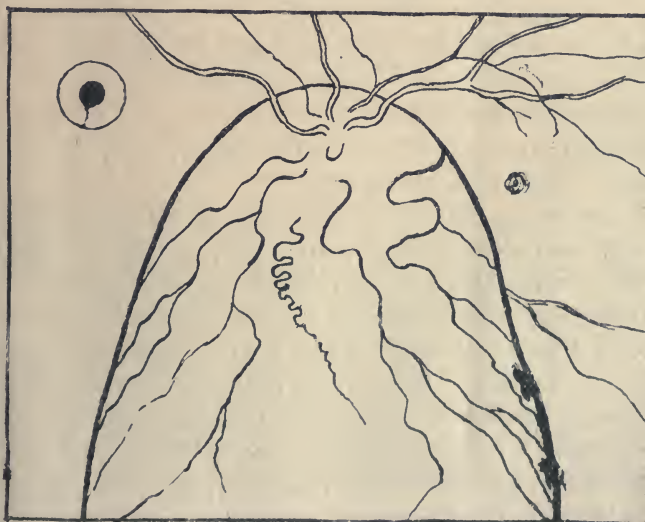


FIG. 2.—Left Eye. Coloboma of Choroid.

down and inward a shallow groove in the anterior layers of the iris. Well down below the pupillary border of the iris is a dense spike-shaped opacity in the anterior portion of the lens. The coloboma of the choroid is even more extensive than that in the right eye but in other respects is similar. (See Fig. 2).

WILL ATROPINE PRODUCE A CONVULSION IN AN EPILEPTIC?

BY JAMES THORINGTON, M.D., PHILADELPHIA, PA.,

ADJUNCT PROFESSOR DISEASES OF THE EYE, PHILADELPHIA POLYCLINIC, ETC.

Miss Bessie B., white, aged 8, florid complexion and well nourished was referred to me May 30, 1896, by the family physician with the following history: At two years of age, when cutting teeth, had three or four severe convulsions and was very ill. From this time was in moderate health until four years of age when, after eating dumplings, was taken with a convulsion and has been having convulsions—"nervous spells"—irregularly ever since, the last one being May 23. Attacks are always preceded by a premonition, as she calls out for help and then falls unconscious, frothing at the mouth, quivering and rigid, head jerking to side and eyes rolling. Never bit her tongue, or had an attack during the night. After the "spell," is very quiet and languid.

No family history of hysteria, epilepsy, insanity or other neurosis. Other children healthy.

Mother states that Bessie had had "cross eye" and "rolling eyes" ever since the convulsion at four years of age, and not before. Has also noticed that her vision is poor.

Ocular condition of patient:

O. D. V.=⁵/_{xxv}? P. p. Type I. D. = 8 c.m. uncertain.

O. S. V.=⁵/_{xxv}? P. p. Type I. D. = 8 c.m. uncertain.

Can not fix with both eyes. Nystagmus mixtus. When right eye fixes the left is turned in and when the left fixes the right turns up and out. Pupils round $3\frac{1}{2}$ m.m. Iridis equally and freely mobile to light and accommodation. Ophthalmoscope shows O. D. media clear, disc large, oval axis 90°, very

pale and few capillaries made out. No distinct cupping, choroid ring all around nerve. Veins full, arteries one-half the size of veins and appear contracted. Choroidal circulation noted in periphery of eye ground. Refraction compd. H.As. O. S., same ophthalmoscopic changes noted. Fields unsatisfactory on account of age and restlessness of patient.

Worsted show incomplete color-sense. The diagnosis made was double optic atrophy, which, together with the epilepsy, was no doubt the result of a meningitis at two years of age.

The treatment suggested was increasing doses of the saturated solution of iodide and five-grain doses of bromide three times a day. July 29. Iodism having developed the iodide was gradually diminished and finally increasing doses of nux vomica substituted. August 24. Is taking twenty drops of nux vomica and is in the best of health. Has not had a convulsion for four months, the longest time she has ever gone without one. Previous seizures being at most one month apart.

To aid in finding the exact refractive error, atropine gr. j to $\bar{3}$ ij was ordered, one drop in each eye three times a day. Noticing that the explained effects of the drops were causing anxiety, I remarked to the mother that if Bessie should have a "spell" during their use, she should not censure me as I never knew of such an effect. However, in forty-eight hours the patient returned with the statement of having had a mild attack (slight loss of consciousness) after two instillations of the drops. Subsequent use produced no ill effects. Refraction (skiascopic) gives the same correcting glass for each eye.

+ 1.00 sph. \bar{C} + 0.50 cyl. axis $90^{\circ} = 5/XII$.. ? which were ordered less 0.25 D. for constant use. One month later, patient doing nicely and had no more attacks.

In summing up, the question arises, will atropia, as used in this case, produce a convulsion in an epileptic? Thus far in his search through the literature the writer has been unable to find any confirmation of this point and in a late correspondence on this subject with Dr. L. Pierce Clark, of the Craig Colony, he expressed the writer's opinion as told the patient's mother that the occurrence of the seizure at the time of using the cycloplegic, was not from the drops but was a coincidence.

SOCIETY PROCEEDINGS.

SIXTY-FOURTH ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION.

SECTION OF OPHTHALMOLOGY.

DAVID LITTLE, M.D., F.R.C.S.E., PRESIDENT.

[*Abstract from Report of British Medical Journal.—J. E. J.*]

Cases Illustrative of Interesting Morbid Changes in the Retina.

By HENRY JULER, F.R.C.S.

CASE I. *Retinal Apoplexy*.—W. D., aged 39, was admitted to St. Mary's Hospital 1892, and was found to be suffering from a dilated heart and secondary tricuspid and slight mitral incompetence at times. He also had acute nephritis, but this was considered to be consecutive to the cardiac trouble. He first noticed that the sight of his left eye was failing in July, 1892; it gradually grew dim without pain, and by September 4, when I saw him, he was quite blind with that eye. I found he had perception of light, but bad projection. There was no red reflex seen on retinoscopy, but a very dull maroon-red reflex could be seen with the ophthalmoscope. The tension was slightly raised and eserine drops were ordered. An intra-ocular growth was suspected, and he was advised to part with the eye. On September 23 acute glaucoma supervened and the eye was excised the same day. To my intense surprise, upon examining the eyeball no tumor was to be seen, but I found the retina mottled throughout with dark brown patches so numerous and confluent that scarcely any healthy-looking retina was visible. The vitreous humor appeared normal. These patches proved to be retinal hæmorrhages.

CASES II AND III.—The author gave history of one case of glioma endophyton and one of glioma exophyton, and summed up the points of difference as follows: In glioma endophyton there is no detachment of the retina, the main bulk of the tu-

mor is at the periphery, and its surface is irregular and shaggy. In the latter we find that the retina is invariably detached; that the retina near the disc is the usual starting point of the tumor, and its surface is smooth. With regard to these two cases it is interesting to note that the glioma endophyton was diagnosed in the first stage of the disease, but the glioma exophyton in the second. This may be owing to the anterior situation of the tumor in the former, also to the bulk of the growth which is greater than that in the latter, and yet secondary glaucoma did not ensue. The detachment of the retina in the exophytic variety no doubt precipitated glaucoma. The non-vascular focal deposits in the endophytic is a point of interest. They are nourished presumably by the aqueous humor. The shaggy filamentous surface of a glioma endophyton can not, it seems to me, be better explained than by supposing the tumor to be growing in different directions through the interstices of the spongy framework of the vitreous body.

CASE IV. Choroidal-retinal atrophy, the sequela of a chronic exudative choroido-retinitis due to acquired syphilis. Eye removed on account of an attack of acute glaucoma. The author remarks that the termination of these cases of choroido-retinitis after cicatricial changes have ensued is not uncommonly one of acute glaucoma. There appears to be no other remedy than that of removal of the offending organ. The use of formol will enable us to preserve these interesting specimens of choroidal and retinal diseases which have been, until the introduction of this hardening agent, so changed by Müller's fluid as to render them too indistinct for naked-eye recognition.

CASE V. *Peculiar Retinal Growth Simulating Glioma.*—In November, 1892, I was called into consultation to give my opinion on a case, a boy, aged $3\frac{1}{2}$ years. There was visible through the pupil a glistening white mass extending over a large area at the lower and outer part near the periphery a white projection was seen glistening white and with some color on its surface either due to vessels or to a hæmorrhage. I diagnosed glioma. There was also at the inner side of orbit, well within its cavity, a hard, apparently sessile, hemispherical mass, not very movable. This I took to be either a secondary deposit from the intra-ocular growth or a dermoid cyst. The eyeball was removed, and the orbital tumor proved to be a

dermoid cyst, and the intra-ocular neoplasm neither a glioma or so-called "pseudo-glioma," but in my opinion not a true tumor, but the result of a hæmorrhage into the retina prior to its detachment, as the appearance of the choroid indicates.

The Advantages of Mules' Operation of Evisceration with Insertion of Artificial Vitreous Over Enucleation of the Eyeballs.
By T. H. BECKERTON, M.R.C.S.

The following is a modification of Mules' table of the advantages of his operation over that of enucleation.

| ENUCLEATION. | VERSUS | MULES' OPERATION. |
|---|--------|--|
| 1. Complete removal of globe and its contents. | 1. | Retention of the framework of the eye. |
| 2. No stump, therefore sunken eye. | 2. | A firm round globe forming perfect support for artificial eye. |
| 3. Disturbances of all muscular relations and arrest of movement. | 3. | Perfect harmony of muscular movements retained. |
| 4. A fixing staring eye attracting attention. | 4. | Fitted with selected eye defies detection. |
| 5. Patient shuns society. | 5. | No qualms as to personal appearance. |
| 6. Arrested development of orbit in cases of children. | 6. | No interference with growth of orbit. |

The author then mentions the points observed by him during the operation, to insure the best results:

1. To dissect the conjunctiva from its corneo-scleral attachment back to the equator. This allows the conjunctiva to be easily brought forward at the termination of the operation.

2. To remove the cornea by transfixing with a Beer's knife, and to complete the section with the same knife, taking care that the incision lies entirely in the sclerotic. I prefer Beer's knife for this purpose to a Graefe or scissors, because with it I can leave the margins cleaner cut.

3. After careful removal of the contents of the globe, to scrape well with a specially devised scoop, the ocular termination of the optic nerve. This, I believe, tends to arrest the bleeding from the central artery.

4. Arrest hæmorrhage, either by Carter's ingenious bulb inflator or by packing with sterilized gauze, or by free injection by means of Higginson's syringe into the globe of perchloride lotion, 1 to 5000, but over this I waste no time, and even when bleeding continues, proceed:

5. To introduce the artificial vitreous, dividing the sclera vertically, horizontally, or obliquely, as circumstance may necessitate, and taking care that the glass ball when *in situ* enables the edges of the sclerotic to come into apposition without undue tension.

6. To apply the sutures (fine chromized catgut) carefully and closely, the projecting angles at each end of the wound being first cut off.

7. To stitch the conjunctiva carefully over all, at right angles to the sclerotic wound. During the whole of the procedure the parts are frequently syringed with the perchloride lotion.

Immediate Effects. Pain and Swelling.—In some cases not only is the swelling of the lids great, but there is general œdema of the temple and side of face, and chemosis of the conjunctiva may be so great as to protrude between the eyelids. Severity and duration of pain and swelling are controlled by applying constantly lint pads saturated with iced perchloride lotion with or without lead and opium. This cold application is most grateful to the patient, and reduces pain and swelling to a minimum; and to this simple proceeding more than any else, do I attribute the great success I have had in dealing with these cases. Patients are confined to bed on an average of ten days. I am never in a hurry to get patients up, for the less the eyeballs are moved the better. I do not bandage the good eye. My experience (forty cases) enable me to indorse every claim made for Mules' operation; which though more difficult to perform is equally safe, and leaves the patient with the healthy part of the eye undisturbed, preserves the power of movement and retains for him his natural appearance. Except in special cases enucleation is an unjustifiable operation, and one that sooner or later will sink into oblivion.

Mr. Juler said that when first practicing the operation he found the glass vitreous frequently escaped about the fourth or fifth day, after much pain, swelling and even suppuration. This he believed to be due mainly to the glass globe being too large.

A Discussion on Precision in Squint Operations.

I. DR. P. W. MAXWELL, of Dublin, read a valuable paper based on 179 cases of squint and made the following practical suggestions:

1. The angular measurement of squints is to be preferred to all others as being the most accurate. The angle gamma should also be measured, otherwise the exact reduction required can not be known. With young children who will not sit still at the perimeter, Priestley Smith's tape measurement may succeed.

2. The refraction and vision of each eye should be ascertained, and the immediate effect of glasses on the long and prox. angle, and on the vision, should be noted. If there is any doubt about the refraction atropine should be used.

3. Where the time can be spared, glasses of full correction should be ordered for constant use for about two months. If the patient can not relax for distance, atropine should be used till he can.

4. If after two months of glasses the squint, including angle gamma, is reduced below 8° , a more extended use of glasses should be tried, and orthoptic exercises employed. But if from 8° to 20° of squint remain, a single tenotomy should be performed with a more or less free division of side attachments. If the result is pretty near the full correction the patient should be seen for a few weeks at frequent intervals. The glasses being taken off or left on for even one day makes a difference in the final result.

When an operation is performed on one who has not previously worn glasses a too small result may be increased by their aid, but a too great result can not be remedied. But it is a matter of clinical observation that in a case where glasses have already produced their full effect, they will again, after operation, produce a further reduction. Therefore the patient who has worn glasses before operation has this advantage, that by continuing to wear them, by having their strength reduced or by stopping them altogether, he can have the operative effect increased or diminished.

5. No second operation should be performed for at least three weeks. If, after the first operation, 10° or more remain, a tenotomy on the other eye should be performed, and subsequently regulated by glasses.

As the average effects of two consecutive tenotomies and of a tenotomy and advancement are the same, it is a matter of taste which plan is adopted in squints between 20° and 25° . But where outward movement is restricted, I should, from

theoretical reasons as well as in deference to the clinical experience of others, prefer an advancement. Where the squint is above 25° , a tenotomy and more or less extensive advancement should be performed, for though two consecutive tenotomies might suffice, yet they might not. Any remaining squint, if between 8° and 20° , should be treated by a simple tenotomy, and if over 25° by tenotomy and advancement.

6. It is to be noted that these suggestions apply to cases that have worn glasses. If glasses have been worn we must be considerably more cautious.

7. The cases which wear glasses permanently seem to obtain a greater improvement in vision and on the whole to give the better ultimate results. But often in deference to the wishes of the patient or friends, we are urged to give them up after a time. This should only be allowed where the ametropia is slight, and the refraction of the two eyes does not differ by more than 1 D. On the other hand, glasses as a permanency are indicated where a convergence too small for operation remains, where the vision of one or both eyes is improved by them, and where the refraction of the two eyes differs by more than 1 D.

8. Sutures should be boiled before use, and should not be left in much more than a week. By causing inflammatory softening and then stretching of a new attachment they may, as I have shown, largely undo the benefit of an advancement.

II. PROF. LANDOLT, of Paris, said the squint operation is badly understood on account of the inaccurate knowledge not only of the anatomy and physiology of this motor apparatus of the eyes, but especially that of the nature of strabismus itself. Strabismus does not consist simply in the wrong direction of one eye, but in the disturbance of the co-ordination of the movements of both eyes, so strabotomy does not imply simply the setting an eye straight, but is the aid lent by the surgeon to Nature, in order to re-establish the harmony of movements. Etiology tells us that in non-paralytic strabismus both eyes are involved, the operation for squint must therefore be directed to both eyes, and must consist rather in the increase of power of the weak muscles, than in the weakening of the healthy muscles. As to the rules that many have attempted to lay down for the exact amount of advancement, they are rather illusory. It is not the surgeon who makes the precise

correction during the operation, it is Nature, in her efforts for binocular vision, who makes it afterwards.

A Discussion on Cataract Extraction.

G. A. BERRY, M.B., Edin., said that in most cases where the subject of extraction has been discussed, the question has been simple *versus* combined extraction. Comparatively few seem to consider the advisability of selecting cases for which one method may be more suitable than the other. If it were necessary to choose between the two operations one which should be put in practice in every case, I should unhesitatingly choose the operation with iridectomy. That operation, too, I should recommend to all whose experience of extracting for cataract is limited. In talking of making a selection, I mean selecting the cases in which one may attempt to get the greater advantages of the simple operation with the best chances of success. The method of performing simple extraction which has led me to alter my views as to its value, is one which, so far as I know, is due to Prof. Snellen. The incision is large, occupying half the circumference of the cornea. It lies in the apparent corneo-scleral margin, and is made with a large and broad conjunctival flap, the knife being carried for fully a quarter of an inch below the conjunctiva before cutting out after the section at the corneo-scleral margin is completed. The cystotome is introduced from the side, that is at the one end of the incision. The cornea is then pressed upon below the centre, so as to cause the large wound to gape considerably, and make the edges of the lens escape in front of the iris. A strong solution of pilocarpine is used immediately before operating. Needling is done a fortnight later. The large incision which has to be made in order to remove the lens easily and without injury to the iris is, perhaps, to some extent, a disadvantage. The site, however, at the corneo-scleral margin secures good apposition, and the large conjunctival flap provides well for the vitality of the cornea and for rapidity of healing.

F. RICHARDSON CROSS said he had long advocated the simple method in certain cases, and performed about equally frequently as with iridectomy.

DR. LITTLE, President of the Section, said that in most of his cataract operations he performed iridectomy. He carefully selected the cases for simple extraction. He agreed with Dr.

Berry, that the line of incision should be close to the sclero-corneal junction; if well made in that position prolapse of iris rarely occurred. Incisions, if too corneal, were liable to prolapses. He thought it was very important, not only to have the pupil round, but also free from all lens *débris*.

The Formation of Artificial Pupil by Extraocular Iridotomy. By J. B. LAWFORD, F.R.C.S.

The technique of the operation is as follows: A small corneal incision is made, with a triangular keratome, close to but not quite at the limbus corneæ, the knife carefully withdrawn to avoid a following prolapse of iris. A pair of fine curved iris forceps, without teeth, is then introduced and the iris gently grasped close to its pupillary border and withdrawn. It is then divided at right angles to the pupillary edge, and through about half its width, with a pair of iris scissors and afterwards carefully and gently returned to the anterior chamber. After tucking back the iris eserine drops may be applied. The eye is then tied up with a pad and bandage, and the patient kept perfectly quiet for twenty-four hours.

MR. THOS. H. BECKERTON remarked that it seemed to him that all the advantages of this operation were to be obtained by the ordinary operation of iridotomy, namely, corneal incision and the snipping off of a morsel of iris withdrawn by by means of a Tyrrell's hook, and in his hands this operation had never failed to secure the wished-for result. To squeeze a portion of the iris, produce a prolapse, incise the squeezed portion, and then replace the injured membrane as suggested by Mr. Lawford, was to his mind the reversal or the ordinary principles of surgery, and the adoption of a hazardous method in place of a very simple one.

The Effect of Nasal Obstruction on Accommodation. By P. W. MAXWELL, M.D., Edin., F.R.C.S.I.

For the last ten years I have observed how frequently the same patient seeks advice about his eyes and ears at the same time. On examining these cases more minutely it would appear that the eye symptom is almost invariably accommodative asthenopia, while the ear trouble is chronic catarrh. It is generally supposed that accommodative asthenopia, when once established, will remain as a permanent condition unless the

patient consents to use his eyes less or to wear glasses. But every one must have seen cases where the asthenopia subsides and the glasses are given up. In my experience this has happened with comparative frequency in the combined eye and ear cases to which I have referred. These patients received some nasal treatment. I have now come to the conclusion that asthenopes who frequently or habitually breathe by the mouth are more likely to be benefited by nasal treatment than are those in whom the nasal mucous membrane is quite as abnormal, but who can breathe freely through the nose.

DR. RAYNER BALTEN said that he could fully bear out Dr. Maxwell's statements as regards the association of asthenopia with nasal disease, but thought that nasal conditions were responsible for more than simple accommodative effects, and that amongst others they were frequently productive of myopia; and further, when nasal conditions were present, they could be diagnosed frequently from the condition of the fundus. There were two conditions which he had frequently found associated with nasal conditions; the one was the formation of posterior staphyloma towards the nasal side of the optic disc; the other was an "œdematous" condition of the optic disc as shown by slight swelling and blurring of the nasal side.

Treatment of Corneal Opacities by Electrolysis. By EDGAR STEPHENSON, M.D., Liverpool.

Opacities of the cornea, in which I include all those caused by keratitis, ulcer, or direct injury, are among the commonest, and at the same time the most intractable, of all eye complaints; and I do not think it is any exaggeration to say that, except in infants, and in the very slightest cases in childhood, the recognized treatment by stimulating ointments or any other of the ordinary means is a more or less disheartening failure.

Any treatment, therefore, which seems to hold out hopes of better results than are usually attained is certainly worth a trial; and I am sure that in electrolysis of the cornea we have a method which in some cases is brilliantly successful, and in all cases will do more good than years of treatment by yellow ointment.

The application of the galvanic current to the eye is, of

course, no new thing, and for the particular class of cases it was tried by Adler some years ago. He reports favorably of it, but used far too strong currents, and his method of application was faulty. It has been revived in America by Dr. Dennis, of the Erie Eye Hospital. The method that I employ is as follows: The current may be taken from the street main (constant variety) or may be taken from a good battery. The kathode is the active pole and is applied to the eye by means of a small silver rod with rounded end. The anode is of the ordinary sponge or disc type and may be applied to the cheek of the patient on the opposite side to the eye to be treated.

A pressure of $1\frac{1}{2}$ to 3 volts is sufficient to give the requisite result. This should be about $\frac{1}{4}$ M. A., and should never exceed $\frac{1}{2}$ M. A. The eye is cocainized, and the patient, who should be lying down, is directed to hold the anode on the cheek. The current is then turned on and the lids being held apart by the fingers, the silver rod is rubbed lightly over the opacity for about one minute. The cornea should be kept moist. A slight frothing is generally seen in the track of the rod, but no pain, or at most a slight pricking sensation is felt. A little vaseline is put into the eye, and bandaging should be avoided. As a rule I apply treatment every other day.

By keeping to this small current and by not allowing the electrode to rest any length of time in the same spot, all damages to the cornea can be avoided.

The length of the course of treatment depends on the density and nature of the opacity. Faint nebulæ, which, however, have resisted ordinary treatment, are disposed of in six to ten applications. The denser opacities begin to clear at the edges, and it requires much perseverance before, in some cases, any great improvement in central vision is noticed. Very dense opacities are practically hopeless. After 15 to 20 applications of the current it is well to stop the treatment for a month or two as the cornea appears to get thin and soft and its curvature may be permanently altered.

MR. HOLMES SPICER had seen remarkable results from this kind of treatment, but they were all in the case of old opacities of long standing resulting from interstitial keratitis. The electrode he used had a small metallic cup at its end, to which a small globule of mercury was adherent. When this was applied to the cornea the mercury flattened out over a

more or less large area, and secured perfect apposition with the curve of the cornea. He had used a current of three-tenths of a milliampère twice a week; there was in some cases a considerable amount of irritation immediately following the application, and the cornea had a frosted look as if the mercury had been driven into its epithelium, but the irritation soon passed away.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

THURSDAY, OCTOBER 15, 1896.

EDWARD NETTLESHIP, F.R.C.S., President, in the Chair.

Cataract Extraction in an Albino. By DR. ARTHUR SANDFORD (Cork).

Previous to operating he was anxious to find some reference indicating the possible influence of the congenital condition upon the success of the operation, but could find no similar case recorded. He extracted the left cataract with a narrow iridectomy, and the operation was satisfactory, as well as the subsequent progress of the case, except that for about ten days there was considerable hæmorrhage into the anterior chamber from the cut surface of the iris. This seemed to be connected with the morbid condition. Ergot and iron were administered. The patient recovered excellent vision with glasses ($V.=\frac{6}{IX}$, reads 4 J.). In future he would omit iridectomy in similar cases.

THE PRESIDENT had operated on an albino; the case did very well surgically.

DR. DRAKE-BROCKMAN had operated on a Hindu albino; there were no complications, and the case did very well.

Oxygen Gas in Suppurative Conditions of the Cornea. By DR. SANDFORD (Cork).

He had had several cases of corneal and conjunctival

affections treated by hydrogen after the manner used so successfully by Dr. George Stoker in treatment of wounds and chronic ulcers. As to the ultimate value of this treatment in ophthalmic work, the time was too short and the cases too few to justify a definite opinion, but from what he had seen he was sanguine as to its usefulness. The class of cases in which marked benefit had been followed were superficial spreading ulcerative keratitis, ulcer of cornea with hypopyon, and mucopurulent conjunctivitis. The obvious advantage seemed to be that in cases of photophobia with discharge the patient was enabled to keep his eyes open, since light was excluded by the rubber cap containing the oxygen gas, and the eyeball was kept constantly in a pure atmosphere, which had been proved to be inimical to noxious germs, and favorable to healing processes. His object in bringing this subject forward thus early, whilst still in the experimental stage, was that some of those present might be induced to give the treatment a fair trial, and to record their experiences, favorable or otherwise.

MR. TREACHER COLLINS had had this treatment used in one case of ulcer of the cornea in a child. A rapid recovery followed, but this might have been due to other causes such as coming into the hospital.

Hereditary or Congenital Optic Atrophy and Allied Cases. By MR. SIMEON SNELL (Sheffield).

He contributed 16 cases in which both eyes were affected. They ranged themselves into three groups (1) This group consisted of a family in which 5 out of 8 children (3 sons and 2 daughters) were amblyopic. The patients when first seen were all adults, their ages ranging from 32 to 21. The condition in all was apparently congenital, and had undergone no alteration. The field of vision showed no peripheral contraction. Color blindness was present in 4 of the 5 cases, but a brother with normal sight was also color blind. (2) This group comprised 8 cases, namely, 2 brothers who became affected aged about 17; 2 brothers who became affected at about 20 and 24; a young man affected at 25, cousin to the last-named brothers; and in another family 2 brothers and 1 sister, the amblyopia in each case coming on at the age of 13 to 16. These cases belonged more strictly to the class described by Leber as hereditary optic atrophy. Headache was

a symptom, and epileptic attacks were present in two instances. A central scotoma was present in some of the cases, and in some also there was contraction of the periphery of the field. The exciting cause was not evident. In one vision failed shortly after marriage. (3) In this group were 3 brothers—smokers. A similar series had been related by Mr. Edgar Browne. The affection showed itself at different ages, namely, 52, 49, and 35. The cases were observed from eight to ten years ago, and the condition has remained permanent, the best having now $V.=\frac{5}{\infty}$ in each eye. In each case there is peripheral contraction of the field and a central scotoma.

THE PRESIDENT said that the distinctions between the different kinds of family blindness were very useful, and should be made the most of. All the cases were not hereditary optic atrophy as described by Leber; he had met with dyschromatopsia and amblyopia in several members of a family whose sight remained stationary; they could all see better in dim light.

DR. HABERSHON said that there were differences between some of the cases. Those which occurred in smokers in a family showed that the members of that family were not able to resist the action of tobacco. He thought that the cases in Mr. Snell's first group were more of the nature of retinitis pigmentosa with night blindness.

Herpes Ophthalmicus Occurring Shortly After Extraction of Cataract on the Same Side. By MR. SNELL (Sheffield).

The case was interesting from the fact that a severe attack of herpes ophthalmicus occurred in a woman, aged 75, seven days after extraction of cataract without iridectomy. In addition to the forehead, the side of the nose and upper eyelid were affected, but a slightly delayed recovery from the operation was the only effect on the eye.

Central Amblyopia as an Early Symptom in Tumor at the Chiasma. By MR. NETTLESHIP.

He had seen about ten cases in which failure of vision at or near the centre of the field in both eyes with little or no early ophthalmoscopic change occurred in women. Three of them turned out to be cases of ordinary tobacco amblyopia, and in one it seemed probable that alcohol was the cause.

Crystals on the Surface." MR. MARCUS GUNN: "Result of Iridectomy for Glaucoma."

PRELIMINARY PROGRAM OF THE SECTION
OF OPHTHALMOLOGY, PAN-AMERICAN
CONGRESS.

The following gentlemen have signified their intention of being present:

DR. B. C. FRYER, Kansas City, Mo.—"The Antiseptic Preparations of the Conjunctival Sac Prior to Operations Upon the Eyeball.

DR. C. W. TANGEMAN, Cincinnati, Ohio.—"The Necessity for Determining the Acuteness of Vision and the Color-Sense in Railway Employees."

DR. D. C. BRYANT, Omaha, Neb.—"Treatment of Burns of the Conjunctiva (Second Stages)."

DR. GEO. H. PRICE, Nashville, Tenn.—Title not sent.

DR. J. E. MIMREY, Topeka, Kan.—No paper.

DR. T. Y. SUTPHEN, Newark, N. J.

DR. F. B. TIFFANY (possibly), Kansas City, Mo.—"Comparative Anatomy and Histology of the Eye."

DR. ROBERT SATTTLER, Cincinnati, Ohio. — "Malignant Disease of the Orbit."

ROBERT SATTTLER, M.D.

OPHTHALMIC DIGEST.

BY J. ELLIS JENNINGS, M.D.,

OF ST. LOUIS, MO.

REMARKS ON OCULAR SYMPTOMS OF GENERAL
PARALYSIS OF THE INSANE, WITH SPECIAL
REFERENCE TO ITS CLINICAL GROUPINGS.

W. BEVAN LEWIS (*British Medical Journal*, May 2, 1896).

After considering the subject in an exhaustive manner, the author tabulates, for convenience of reference, those feat-

ures which mainly demarcate the five groups usually included under the category of general or progressive paralysis of the insane.

Group 1.—Paralytic mydriasis; a partial reflex iridoplegia (light). Increased myotatic irritability. Excessive facial tremor and speech troubles. Great optimism with profound dementia.

Group 2.—Mydriasis with associative iridoplegia rapidly passing into the cycloplegic form—an early symptom. Frequent myotatic excess but no contractures. Late speech troubles. Acute excitement with frequent convulsions. Very rapidly fatal course. (Preponderance of syphilitic history).

Group 3.—Spastic miosis; a complete reflex iridoplegia. Absent or greatly impaired knee-jerk. Failure of equilibration; locomotor ataxy, defective sensibility. Very defective articulation. Much optimism and excitement.

Group 4.—Late eye symptoms; paralytic mydriasis, a partial reflex iridoplegia (for light only). Ataxic paraplegia confined to lower extremities (arms do not participate). Great facial ataxy with extreme troubles of speech. Epileptiform seizures ushering in pronounced mental enfeeblement.

Group 5.—No oculo-motor symptoms beyond occasional inequality. No contractures, but notable myotatic excess. No disturbance of equilibration, locomotion or sensation. Speech troubles not pronounced. Epileptiform seizures very rare, but from the first progressive deepening dementia.

A CASE OF ACQUIRED REGULAR CORNEAL ASTIGMATISM. F. L. HENDERSON, M.D. (*Annals of Ophthalmology and Otology*, July, 1896).

Mr. C. C., aged 29, now an ensign in the United States Navy, took his first physical examination at Annapolis in September, 1883, at which time vision was O. D., $\frac{25}{xx}$; O. S., $\frac{25}{xx}$. He was subsequently examined with the following results:

April, 1884, O. D., $\frac{25}{xx}$; O. S., $\frac{20}{xx}$. April, 1885-6, O. D., $\frac{20}{xx}$; O. S., $\frac{20}{xx}$. April, 1887-9, O. D., $\frac{30}{xx}$; O. S., $\frac{30}{xx}$.

He enjoyed the good health incident to his profession and considered his sight perfect. One night at the theatre in 1895, he discovered, by inadvertently closing the right eye, that vision of the left eye was bad. He reported his condition to his commanding surgeon at once, and the result was a medi-

cal survey which reported December 28, 1895, as follows: Unfit for duty, disease, weak eyes. Right eye slightly myopic and astigmatic. Left eye, vision, $\frac{8}{xx}$ and not corrected by lenses.

February 6, 1896. I examined his eyes with the following results:

O. D., V., $\frac{15}{xx}$, with — sph. 0.50 D. = $\frac{16}{xii}$.

O. S., V., $\frac{15}{c}$, with — cyl. 1.75 D. ax. 15° = $\frac{16}{xv}$.

The only explanation of the present case that I can offer is that patient was employed for about six months of 1895 on "coast survey field work" and used a sextant for hours every day. While looking with the right eye he was in the habit of firmly contracting the orbicularis of the left, as the light on the water was too blinding to have it open or even partially relaxed, and it may be that the increased curvature of the cornea at meridian 105° causing an astigmatism of 1.75 D. was the result of continued pressure of the orbicularis combined with a slight absence of corneal resistance, which is presumed from the development of .50 D. of myopia in the right.

BOOKS AND PAMPHLETS.

SYSTEM OF DISEASES OF THE EYE. By American, British, Dutch, French, German and Spanish Authors. Edited by W. F. NORRIS, A.M., M.D., and CH. A. OLIVER, A.M., M.D. Vol. I, "Embryology, Anatomy and Physiology of the Eye." Twenty-three plates and 362 illustrations. Philadelphia: J. B. Lippincott Co. 1897.

This is the first collective work on ophthalmology in the English language, as far as we know, and is modelled somewhat after the great German collective work edited by Graefe and Saemisch. This first volume dedicated, so to speak, to the preliminary knowledge, necessary to understand what the future volumes will bring, is certainly of great credit to its authors, editors and publishers alike. We do not doubt, that the following will be of the same high standard and predict a great success to this work.

OPHTHALMIC OPERATIONS AS PRACTICED ON ANIMALS' EYES. By CLARENCE A. VEASEY, A.M., M.D. With 56 illustrations. Philadelphia: Edwards & Docker Co. 1896.

It was certainly a very happy idea which prompted the author to the publication of this little manual, as it seems to fill a real void. It is clearly and concisely written and will be a great help to every student, trying to perfect himself in the surgery of the eyeball by first practicing on animal's eyes. This excellent method of schooling one's hand and eye is only too often neglected. May the little book help to overcome this neglect!

OVER THE HOOKAH. THE TALES OF A TALKATIVE DOCTOR. By G. F. LYDSTON, M.D. Profusely illustrated. Sold by subscription only. Chicago: Fred. Klein Publishing Co.

This is a collection of interesting, funny and blood-curdling stories referring to the experiences of the medical fraternity, intermingled with a great deal of practical philosophy. The Doctor is a thoroughly good story-teller and particularly well versed in the Irish and Negro dialects. The illustrations are very good.

NOUVEAUX ÉLÉMENTS D'OPHTALMOLOGIE. By H. TRUC and E. VALUDE. Second volume. With 108 illustrations. Paris: A. Maloine. 1896.

This volume completes this text-book of ophthalmology. It treats on the special pathology and therapeutics of the eye, including ophthalmic surgery. There is an interesting chapter on the geographic distribution of eye diseases, one on comparative and veterinary pathology, and one on medico-legal medicine.

ALT.

"The Javal Ophthalmometer and the Methods of Testing its Accuracy." By F. W. Ellis, M.D,

PAMPHLETS.

"Notes on Lithium." By E. Sander, Ph.D., Ph.G.

"Dermoid Tumors of the Cornea." By A. R. Baker, M.D.

"Two Fatal Cases of Hæmaturia." By T. H. Manley, M.D.

"Notes on Inguino-Scrotal Cysts." By T. H. Manley, M.D.

"Syphilis of the Vital Organs." By H. A. Robbins, M.D.

"A New Curette and Evacuator." By E. D. St. Cyr, M.D.

"Acute Rheumatic Iritis, With Cases." By A. B. Deynard, M.D.

"Prevention of Ophthalmia Neonatorum." By Ch. Zimmermann, M.D.

"Lues Venerea and the Third Act of the Drama of Syphilis." By H. A. Robbins, M.D.

"Variations in the Clinical Course of Croupous Pneumonia." By G. Baumgarten, M.D.

"On the Treatment of Fractured Shafts of Bone in Children." By T. H. Manley, M.D.

"Procto-Colonoscopy and Its Possibilities. A New Method." By T. Ch. Martin, M.D.

"Contribution to the Knowledge of Molluscum Contagiosum of the Lids." By Dr. Muetze.

"The Solvent Properties of the Buffalo Lithia Waters in Virginia." By G. H. Boyland, M.D.

"Transactions of the Seventh Annual Meeting of the Medical Society of the State of Washington." 1896.

"A Case of Traumatic Cardiac Neurosis. A Case of Simple Serous Recurrent Pleural Effusion: Its Final Outcome." By J. C. Mullhall, M.D.

"On Movements of the Eyelids Associated with Movements of the Jaws and with Lateral Movements of the Eyeballs." By H. Friedenwald, M.D.

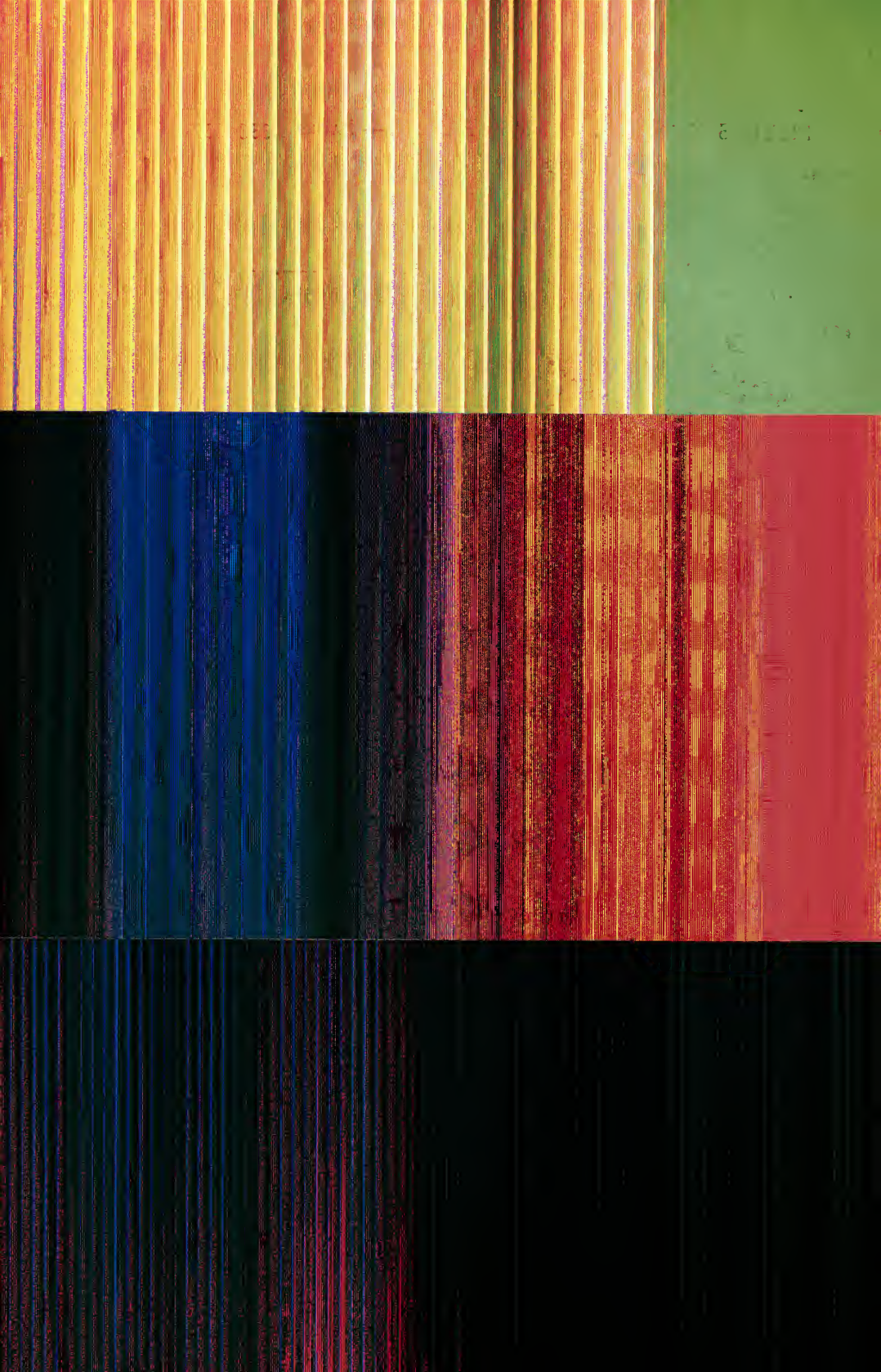




FIG. I.



FIG. II.



FIG. III.



FIG. IV.

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ORIGINAL ARTICLES.

A CASE OF APPARENT NON-TRAUMATIC DOUBLE
IRIDODIALYSIS. GLAUCOMA. CILIARY STA-
PHYLOMATA. DETACHMENT OF RETI-
NAL PERIPHERY. CHOROIDAL HÆM-
ORRHAGES. DISSEMINATE CHORIO-
RETINITIS AND NEURITIS OPTICA.

BY ADOLF ALT, M.D., ST. LOUIS, MO.

[*With Micro-Photographs and Two Illustrations in the Text.*]

On October 3, 1888, Mrs. E. K., aged 24 years, called on me on account of a gradual distortion of the right pupil accompanied by loss of vision and occasional attacks of pain. She had noticed these symptoms for several months but could give no definite dates. According to her story she had never before had an inflamed eye, there never was any corneal ulceration and the eye had never been injured. Vision, on that date, = $\frac{20}{c}$. T. slightly above normal. V. F. apparently a little concentrically contracted. On inspection the pupil was found pear-shaped, the iris being contracted down and outward (see Fig. 1) and adhering to the corneo-scleral tissue. At the place of adhesion several little black nodules protruded and seemed to press the periphery of the crystalline lens slightly backwards. Atropine but slightly dilated the otherwise almost immovable pupil (see Fig. 1). Ophthalmoscopically I only

found a very hyperæmic optic papilla. The other eye was normal.



FIG. 1.

This combination of symptoms seemed to point to a possible growth starting in the ciliary body and I asked the patient to return after some time for another examination.

However, I did not see her again, until September 20, 1895. Of what occurred during this period of seven years, I could glean but little from her statements. With repeated attacks of pain the eye had gradually become blind, although she had, according to her statement, been under the treatment of another oculist for two years. She was now suffering excruciating pains in the blind eye and head, so that she had not slept for several weeks and begged to have the eye removed.



FIG. 2.

To my astonishment I found now that the iris was reduced to a small band, running almost diagonally through the anterior chamber (see Fig. 2). In this manner two pupils of unequal size had been formed. There were two small sclerectatic spots in the ciliary region, one upward and one inward. T.+1. With the ophthalmoscope the papilla could barely be seen and near it three large patches, the nature of which I was un-

ward the base (downward) of the band of iris tissue, and the folds, which are present, appear as new folds. In other words, after a few more sections have been made, the folds of the first band now move anteriorly and make less and less folds toward the base. This is the same as the rolling up of a rug. This rolling outward gradually disappears, and finally, at the base of the band, the fold is partially unrolled and appears rolled up as it is shown in Figure 1, lower right.

Although it does not quite succeed in the rolling up, which this rolling up is due, but it is certainly a rolling up, and finally, after the whole iris tissue in the equatorial band is unrolled, we find the part torn from its uveal layer.

portions of the uveal layer, and the remaining cyst-like space between them. The cysts are now complete. I have seen them in a number of cases and therefore believe and others have described as a detachment. In this case, under consideration we find a total detachment with a different detachment, really is a detachment, and space of the iris tissue from its uveal layer and not of the uveal layer from the iris.

This rolling up of the uveal layer actually ends at the base of the remaining band of iris tissue. In sections through this band, the iris tissue is torn also a band of high-grade atrophy. The peripheral detached cells are free and in larger lumps in the uvea. The blood vessels are partially obliterated. There are others, however, especially near the periphery which is found to be torn. The uveal tissue which are much enlarged and walls are moderately thickened. In about two-thirds of the breadth of the band of atrophied iris tissue the sphincter muscle is visible. In a number of sections a torn off fold of the uveal layer is seen on the anterior surface of this band.

Sections through the remainder of the shrunken iris do not in any way differ from Fig. 1, except that the uveal layer is not as thick, is not folded, and does not reach quite to the anterior part of the iris-stump.

The ciliary body is, also, throughout atrophic. The small ciliary staphylomata present nothing unusual.

The choroid, atrophic throughout, is literally stuffed with blood from the equator backwards, so that no details can be made out, except in the neighborhood of the optic papilla,

where there is a large number of smaller and larger chorio-retinitic foci in different stages of development yet all of recent date, as no scar-tissue has as yet been formed.

The optic papilla is deeply cupped, yet this cupping must have developed at some earlier period of the affection, for the previously atrophic nerve and the cupped papilla show the signs of a recent and quite violent interstitial neuritis. The blood-vessels are gorged with blood and the whole tissue is filled with round cells. A certain amount of oedema has caused a central prominence in the former papillary cup, which springs forward into the vitreous like the boss on a shield.

Reviewing the history of this case, as far as I know it, and the histological findings, I imagine that the original shrinkage of the iris to one side, as I observed it when I saw the patient for the first time, was, perhaps, due to the shrinking of a newly formed membrane on the anterior surface of the iris, here localized, as I have detailed in the June number of this Journal. Of course, it is impossible to say what the formation of this surmised membrane was due to, unless perhaps to a hæmorrhage into the anterior chamber, from an equally unknown cause. Whatever caused the shrinkage of the iris-tissue in this direction, somewhat later, probably, induced an equal shrinkage in an almost diametrically opposite direction. The iris-tissue, already atrophic by this time, must then have given way near the pupillary edge and while the torn off part shrank back to the periphery of the iris, the other part remained forming the band of iris-tissue as seen in Fig 1 (in the text). When the first glaucomatous attack occurred, I do not know, but probably early in the history of the case.

The inflammatory attack combined with chorioidial hæmorrhages, neuritis optica and disseminate chorio-retinitis near the posterior pole of the eyeball, which brought her to me begging to have the terribly painful eye removed, was evidently of recent date.

The peculiar manner, in which the iris became during its shrinkage, in part torn away from the uveal layer, is a perfectly new observation to me, nor do I remember having read anything similar to it elsewhere. How this portion of the detached uveal layer came to roll itself up in the manner shown in the illustrations accompanying this description, I am at a loss to explain.

EXTRACTION OF A PIECE OF STEEL FROM THE VITREOUS BY THE HIRSCHBERG MAGNET.¹

BY HOWARD F. HANSELL, M.D., PHILADELPHIA, PA.

H. B., a sailor, aged 30, applied at the Eye Department of the Jefferson Medical College Hospital in October, 1896. He stated that for some weeks he had suffered with pain, inflammation and partial loss of vision in the left eye. He knew of no cause nor could he date the commencement of his trouble from any particular occasion. The acuity of vision averaged $\frac{20}{60}$, sometimes a little better, sometimes a little worse. The ciliary vessels were injected and the ciliary region sensitive to the touch. The right eye was emmetropic and normal in every respect. Through the dilated pupil of the left the ophthalmoscope showed that the cornea, aqueous, iris and lens were free from disease and that the vitreous was partly filled with coarse floating opacities, in the midst of which and moving with every rotation of the ball, could be readily seen a small reflecting surface that had every appearance of a piece of metal. The fundus imperfectly visible, presented nothing abnormal. Upon close inspection a small scar was detected in the conjunctiva and sclera below and to the outer side of the corneal limbus. The history of an injury was then elicited. In April last, while hammering a steel rivet, the patient felt a sudden sharp pain in the eye and thought it had been struck by a small fragment of the hammer or rivet. He claims that a piece of steel was removed from the eye at this time. The eye rapidly recovered its normal condition and he gave the accident no further thought. During the few days the man was kept under observation, the gradual diminution of vision, continued pain and injection and the repeated confirmation of the diagnosis of the presence of a foreign body in the vitreous decided me to operate. Under thorough antisepsis and cocaine anæsthesia, an incision, several millimetres in length, was made through the conjunctiva in its lower and outer aspect. Sliding the cut edges of the conjunctiva over to that portion of the sclera through which I had selected to perforate the ball I in-

¹Read at the November meeting of the Ophthalmic Section of the College of Physicians, Philadelphia.

cised the clera in a line approximately parallel to the insertions of the inferior and external rectus muscles and midway between them. A bead of vitreous the size of a pea presented at the opening. I then introduced the finest point of the Hirschberg magnet twice unsuccessfully. The third effort was made by my chief of clinic, Dr. W. M. Sweet, and upon withdrawal of the magnet a small corroded piece of iron was found clinging to its end. During each withdrawal the edges of the scleral cut were retracted by Dr. E. K. Perrine, one of the assistants of the clinic, in order to permit of the easy egress of the foreign body should it be caught by the magnet. The conjunctiva was returned to its proper position, stretched over the scleral incision and sutured. There was no appreciable loss of vitreous. The eye was dressed with wet bichloride gauze and tightly bandaged. The healing was rapid and uneventful. At the last visit one week after operation vision equalled $\frac{20}{L}$ and gave every promise of further improvement.

Three thoughts seem worthy of being noted in connection with this case. (1) The foreign body was extracted six months after its entrance into the ball. (2) The retraction of the edges of the opening in the sclera to permit of easy exit of the foreign body. (3) The recovery of vision. It is usually our misfortune to operate only after all chance of restoring vision has long since passed away, when the object of operation is to avoid enucleation and to prevent sympathetic ophthalmia.

EUCAINE HYDROCHLORATE. A NEW LOCAL ANÆSTHETIC.

BY J. ELLIS JENNINGS, M.D., ST. LOUIS, MO.

A new local anæsthetic has recently been introduced to the medical profession under the name of eucaine hydrochlorate. Its chemical name is methyl-benzoyl-tetramethyl-gamma-oxy-piperidine-carbonic acid methyl ester. Eucaine is a colorless neutral crystalline powder soluble in ten parts of cold water. *It does not lose its strength or decompose when kept in solution and may be sterilized without suffering deterioration.*

In a paper read at the session of the Hufelandische-Gesellschaft, Berlin, April 16, 1896, Dr. G. Vinci described his experiments with the drug, as follows:

Local Action.—A 2 to 5 per cent. solution of eucaine instilled into the eye of an animal, as a dog or rabbit, caused complete local anæsthesia in from one to three minutes. It began in the cornea, and spread from thence to the conjunctiva, and lasted on an average from ten to twenty minutes. It was readily prolonged by repeating the dose. The pupil was not dilated, and reacted well to light. Injected under the skin eucaine caused complete anæsthesia of the part so that the reflex could not be evoked even with a needle. A similar complete local anæsthesia of the mucosa was effected when a eucaine solution was painted over it.

Systemic Action.—The general action of the drug, both in cold- and warm-blooded animals, consisted in a marked excitation of the entire central nervous system, followed by paralysis; in toxic doses going on to death. Small doses administered to mice and rabbits caused increased reflex excitability and increased but weakened respiratory movements. Medium doses ($\frac{1}{3}$ to $\frac{1}{2}$ grain per 35 ounces of body weight of rabbits) caused repeated tonic and clonic convulsions. When the dose was increased to $1\frac{1}{2}$ to $2\frac{1}{4}$ grains the convulsions returned continuously, and affected all the muscles of the body. The animals finally died when the paralysis reached the respiratory muscles.

As regards its action on the heart and the blood-vessels, the subcutaneous and intravenous injection of small and medium doses shows it on the average from twenty to thirty beats per minute, but without otherwise modifying the beats, or increasing the blood pressure. This effect on the pulse is caused by the excitation of the central vagus; for section of the vagi causes an immediate increase of the blood pressure. Death occurs from paralysis of the respiratory centres, for the heart continues to beat for some time thereafter.

In all these points eucaine is similar, physiologically, to cocaine; yet there are some important differences, which must not be forgotten. In the first place, eucaine, is *less poisonous than cocaine*. Whilst the animals treated with eucaine survived, other animals injected with the same doses of cocaine, died. The pulse with eucaine is always *decreased* in frequency;

with cocaine there is a *primary acceleration*. As regards their local action, the commencement of the anæsthesia, its duration and intensity, there is no difference between the two substances. *But eucaïne causes no ischæmia*; on the contrary, *vascular dilatation* occurs. A further difference is that *the pupils are not affected*; *mydriasis does not occur*, and the *reaction to light remains normal*.

At the suggestion of Dr. Alt I secured a quantity of eucaïne from Scherin & Glatz, New York, and experimented with a 2 per cent. solution on normal eyes and on cases where a local anæsthetic was indicated. It was used before making applications of silver and copper to the conjunctiva of the lids, cauterizing corneal ulcers, removing foreign bodies, operations for chalazion, ectropion, etc. In the normal eye the first drop instilled caused some smarting, burning, lachrymation and slight hyperæmia of the entire conjunctiva. In diseased eyes these symptoms were more marked. The smarting disappears at the end of two or three minutes when, if a second drop is instilled the smarting returns, but to a lesser degree. The anæsthesia begins in from three to five minutes and lasts from ten to fifteen minutes. According to Vinci, the anæsthesia began in the cornea and spread from thence to the conjunctiva. I agree with Berger that it begins at the point where the drop first touches the mucous membrane and lasts longest there. The hyperæmia is slight in some cases, more marked than in others, and persists usually for about half an hour. Vinci states that eucaïne does not induce mydriasis and that the pupil reacts normally to light. I made a careful test on a normal eye with the following results: Before instilling eucaïne the right pupil of the patient measured 5 mm., the left $4\frac{1}{2}$ mm.; both reacted promptly to light. I then instilled one drop of eucaïne into the left eye and five minutes later, a second drop. During the anæsthetic stage, the left pupil was not affected as regards size and reaction to light. But when I next looked at the eyes, an hour and a half after the instillation of the first drop, the right pupil still measured 5 mm., *while the pupil of the left, or eucaïne eye, had dilated from $4\frac{1}{2}$ to 6 mm.* The right pupil reacted promptly to light, *while the movements of the left were markedly sluggish.* These results differ from those of Vinci, but while it is true that eucaïne effects the size and movements of the pupil, this is less marked than after the use of

cocaine. No disturbance of accommodation was observed, although it is reasonable to suppose that more extended experiments will show a slight loss of accommodative power corresponding to the effect on the pupil. I examined the cornea carefully to note the effect of eucaine upon its epithelium. There was no loss of lustre, no dryness or exfoliation of corneal epithelium as is observed after the use of cocaine. In the various operations in which eucaine was used, it was found equal to cocaine in rapidity of action, duration and intensity of the anæsthesia. It will thus be readily seen that eucaine is a valuable addition to our list of remedies and deserves to rank with cocaine as a local anæsthetic. It is superior to cocaine in that it does not decompose when kept in solution, can be rendered aseptic by boiling, is less poisonous, has but a slight effect on the pupil, causes no disturbance of accommodation, and has no effect on the corneal epithelium.

The smarting and conjunctival congestion caused by eucaine is certainly an inconvenience, but should not prevent our preferring it to cocaine in operations where the absence of mydriatic effect is of especial importance.

MODIFICATION OF THE ORDINARY LACHRYMAL PROBE.

BY JOHN J. KYLE, M.D., MARION, IND.

The treatment of stenosis of the lachrymal duct is often tedious and very annoying to the oculist.



Many patients are stoical and make but little resistance to the passage of the probe, while on the other hand, to pass the probe into the lachrymal duct of a nervous patient is, to say the least, difficult. It is with great pain that the probe is first passed into the duct; when this is once accomplished, it is wise to leave it in position for a certain time, when it can be removed and duct thoroughly syringed with some alkaline solution, and probe reinserted; thus, by process of gradual

dilatation, if necessary, a style can be easily inserted. To do away with the unsightly protruding probe, and its annoyance to patients, and to better enable us to leave it in position, the following modification is submitted: The probe is made by E. B. Meyrowitz, and the accompanying cut partially explains itself. A small screw unites the halves firmly together, and thus enables the operator to easily separate the parts when in position. Such a probe is intended to do away with the use of styles and frequent probings, and to accomplish in a few weeks that which would often take months.

A CASE OF FILARIA OCULI HUMANI. J. W. BARRETT, D.M. (*Archives of Ophthalmology*, July, 1896).

The patient, a young man, had lived on the Gold Coast in Africa for some years. He left it four years before I saw him, and during that time he resided in Melbourne.

Three days before presenting himself for treatment he felt something wrong with the left eye, and his friends then noticed a small thread-like object moving beneath the conjunctiva. This presently disappeared. Three days later the patient visited me and I found in the upper part of the eye, and about four to six millimeters from the cornea, a white, thread-like object moving in folds. The lids were at once retracted by a speculum and the conjunctiva and the worm seized with a pair of iris-forceps. An incision was made with a pair of scissors and the worm was seized with another pair of iris-forceps and gently drawn from the opening. It continued to move for some minutes after its extraction. The worm was about $1\frac{1}{4}$ to $1\frac{1}{2}$ inches long and in bulk the size of a fine piece of string. Dr. Dendy examined it for me and pronounced it to be a filaria, probably filaria oculi humani.

The patient said that such cases are common on the Gold Coast and that the natives extract these worms with fine bone needles, one of which he produced for my inspection. The striking feature about the case is the fact that this filaria had remained hidden, apparently in some lymph recess or artificial sinus, for four years.

CORRESPONDENCE.

ASSOCIATED PHYSICIANS AND SURGEONS OF SANTA CLARA VALLEY.

Editor AMERICAN JOURNAL OF OPHTHALMOLOGY— We ask you to give publicity to this letter to the end that in all communities afflicted with the pestiferous practice of lodge doctoring, physicians may be encouraged to assert their independence through organization.

Here, in Santa Clara County, Cal., containing 70,000 population, all the physicians of the county, numbering 124, have entered the compact that has ridden us of a slavish evil, and wrought independence and freedom for the practitioners of medicine. Investigation shows that medical compensation for lodge work averages about 15 cents on the dollar.

Even respectable lodge physicians feel a sense of degradation in giving their services for 15 cents on the dollar, and the ever-increasing spread of these alleged charitable institutions is absolutely destructive to the business of other physicians.

The main incentive of the persons who band themselves together in lodges is to get cheap doctoring; they are willing to take but not to give. They belong to protecting unions, and the same right should not be denied physicians. Ninety-nine per cent. of these people are able to pay reasonable fees to physicians, but will not do so as long as a few doctors in every community for the sake of immediate gain can be induced to stand as driven guys to the lodge politicians. No preacher or lawyer would give his services to these people for 15 cents on the dollar. No grocery store or merchandise firm would contract to supply these lodges with goods at 15 cents on the dollar of actual worth.

The remedy is simple and manifestly efficacious, depending upon the personal honor and free will of those concerned. Where one doctor temporarily profits by contract work the business and ethical rights of fifty others are violated; hence an overwhelming *esprit de corps* is created among physicians which will sustain strict observance of the pledge.

LINCOLN COTHRAN, M.D.,

San Jose, Cal., November, 1896.

Secretary.

SOCIETY PROCEEDINGS.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

THURSDAY, NOVEMBER 15, 1896.

EDWARD NETTLESHIP, F.R.C.S., President, in the Chair.

Intraocular Cysticercus. Notes of a series of Cases. By DR. HILL GRIFFITH.

The author's first two cases were living specimens. A blue cyst could be seen in the eye with a neck waving about in the vitreous; in the first of these specimens destructive inflammation followed, and the eye was removed; in the second case the globe was opened by a meridional section of the sclera at the equator of Dr. Little; the wound gaped, the cyst presented itself and was removed. In the third case the patient was a youth aged 17. The sight had been failing two years; there was total detachment of the retina and the T. was — 3. The space behind the detached retina contained a cysticercus, with a concentric arrangement of bluish-colored lymph, which he considered to be characteristic of cysticercus. The fourth specimen, an eye lost from slow destructive inflammation, showed the same rounded bluish mass in the vitreous. The fifth case presented nothing remarkable. The sixth case showed all the characters of a cysticercus, and had the concentric arrangement of fibrous tissues, but its head could not be seen; it could not, therefore, be certain that it was a cysticercus, although he felt quite sure of it. The seventh case was that of a child aged $3\frac{1}{4}$ years, with cataract in the right eye, with no perception of light, and with a white opacity deep in the eye. Glaucoma came on, and the eye was removed. The interior of the eye was lined throughout with a dense membrane in the situation of the hyaloid membrane, consisting of an immense number of layers of fibrous tissue. In this lamellation of the outer membrane the cyst resembled a hyda-

tid; he did not know if hydatid has been seen to occur in the eye, but the resemblance was so strong that he could not help thinking that this was its nature. All these cases occurring at Manchester made it probable that cysticercus is not so uncommon as was thought in England. Where there had been slow gradual failure of an eye without much inflammation and with a mass of rounded lymph in the vitreous, the case was probably a cysticercus.

THE PRESIDENT remarked that very few in England knew much about cysticercus; possibly this was due to its being sometimes overlooked. There might be something special in the condition of Manchester giving rise to the occurrence of cysticercus. It was known to have a very different distribution in different parts of Germany, it was common in Berlin and very rare in Vienna.

MR. LAWFORD asked what were the conditions under which the patient lived, and were these cases due to *tænia solium* or *tænia medio-canellata*.

MR. HARTRIDGE asked if the patients were English or Germans, and what food they ate.

In reply, DR. HILL GRIFFITH knew nothing of the habits of the patients previous to their being seen; they were all English. He did not know whether the worms were *tænia solium* or *tænia medio-canellata*.

Modification of the Usual Method of Mounting Specimens in Glycerine Jelly. By MR. DEVEREUX MARSHALL.

The author said he had frequently noticed much inconvenience arise from the comparatively low melting point of the glycerine jelly in which museum specimens were mounted, and also the color of most of the jelly was distinctly brown. He recommended the following method as producing jelly which was only slightly colored: Cut up 30 grammes of the best French gelatine and allow it to soak in 240 c.cm. of cold saturated solution of boracic acid (made by dissolving boracic acid in boiling distilled water). Add 80 c.cm. of glycerine and the white and shell of one egg. Heat this in a water bath, and when the albumen was being precipitated add 1 c.cm. of glacial acetic acid. Boil for several minutes and filter through flannel; then again filter once or twice through filter paper in a hot water funnel. In order to make this resist heat the fol-

lowing simple method was adopted: Pour a sufficient quantity of the melted jelly into a test tube containing some formol in the proportion of 3 or 4 minims of the latter to the drachm of the former. Thoroughly shake together and proceed to mount the specimen in the usual manner. The jelly does not undergo any alteration in appearance by the addition of the formol, nor does it show any additional tendency to set more quickly. However, after the first twenty-four to forty-eight hours it will be found to have become quite incapable of being again melted by any amount of heat. It can be raised to any temperature or held in a test tube in a Bunsen flame until heated to boiling point, and yet it will not melt. Water may be boiled on its surface without any change whatsoever taking place in the solid mass of jelly. If less of gelatine were used a still whiter jelly was produced, but it was not so firm, but still it even then failed to melt with heat, after the addition of formol, but possibly after a time this might shrink whereas the other certainly did not. This would prove most useful to those who wish to have permanent preparations, even if they resided in very hot climates. Dr. Wilder, of Chicago, had recommended exposing the surface of the jelly to the action of formol, but the author preferred mixing it as above described.

Remarks were made by MESSRS. PRIESTLEY SMITH and GRIFFITH.

A Stitch for the Adjustment of the Ocular Muscles. By DR. H. LINDO FERGUSON.

After exposure of the tendon by a vertical incision, it is divided and held in the forceps. A suture is then passed through the conjunctiva and tendon at the edge of the latter, then through the subconjunctival tissue as far as the upper part of the cornea, when it is brought out on to the surface. The other end of the suture, armed also with a needle, is similarly passed through conjunctiva, tendon, and episcleral tissue to a point corresponding with the other thread at the lower part of the cornea; the middle part of the thread thus forms a loop over the middle of the tendon; the upper end of the thread is then passed beneath this loop and tied to the lower end, thus drawing the tendon and conjunctiva into place.

OPHTHALMIC DIGEST.

By J. ELLIS JENNINGS, M.D.,

OF ST. LOUIS, MO.

PARALYSIS OF THE SIXTH AND SEVENTH NERVES OCCURRING IN A PATIENT WITH WHOOPING- COUGH. F. A. CRAIG, M.B., R.W.I. (*British Medical Journal*, June 13, 1896).

The patient is a little girl, aged 3 years and 4 months, and the third of the family. When 9 months old she had a slight attack of bronchitis which soon passed off. Save for this, she has always been healthy. During the second week of September whooping cough appeared. The paroxysms of cough were not over frequent during the day, but numerous and severe at night. On one occasion during a paroxysm of coughing, blood came from the left nostril; this was the only time any visible hæmorrhage occurred. About the end of the first week in October, the mother noticed the child's left eye squinting, and its face "peculiar," especially when she cried from toothache, due to a few carious teeth. On November 11 I was called

The Facial Paralysis.—The characteristic physiognomy of facial paralysis was well marked. The lower part of the face appeared as if all the furrows were washed out, and it did not take any part in the movements of the face, even in the movements produced in crying. The angle of the mouth on the affected (left) side was on a lower level, and somewhat nearer the middle line. The lower lip and chin also appeared drawn over to the sound side, and the orifice of the mouth oblique. The orbicularis palpebrarum and frontalis muscles were very much weakened, though not absolutely paralyzed.

Eye Phenomena.—The left external rectus was completely paralyzed, so much so, that in the resulting internal strabismus, the inner edge of the cornea was hidden beneath the internal canthus. The eye could not be moved outwards, and

attempts to do so were accompanied by slight oscillations of the eyeball, probably due to the action of the oblique muscles. When going about the house the child covered the left eye with its hand to prevent double vision.

The history of the onset of the paralysis is most unsatisfactory, neither mother nor father are certain whether its onset was sudden or gradual or whether the paralysis of the facial and sixth nerves occurred at the same time.

This case is evidently one of infra-nuclear paralysis of the facial nerve. The want of absolute paralysis in the orbicularis palpebrarum and frontalis muscles may be explained by the lesion producing the paralysis not having to the same extent implicated the fibres for the orbicularis palpebrarum and frontalis as the fibres for the lower facial muscles. It may also be explained by the well known fact that in recovery the power of winking and closing the eye is first regained. According to Dr. Gower's classification, this case may be put down as a case in which the lesion is in the sixth nucleus, but that the structure observing the inward movement of the sound eye has escaped destruction.

The most common causes which might give rise to this lesion within the pons are: hæmorrhage, embolism, thrombosis, cerebral abscess, tumors—(including syphilitic growths); cerebral tuberculosis, and islets of disseminated sclerosis.

Disseminated sclerosis, cerebral tuberculosis and cerebral abscess, may, I think, in this case, be dismissed. The paralysis is not such as usually accompanies a tumor; it is not of slow origin; and it is not at all progressive. Epileptiform convulsions and cerebral vomiting are absent. We can not make out whether optic neuritis is present in this case or not without chloroforming the child. As to cerebral thrombosis this patient is a young child and free from syphilitic taint. I admit the possibility of a thrombosis forming during the exhaustion produced by a paroxysm of coughing, but I think it is unlikely to be the cause in this case.

Embolism is usually due to mitral or aortic endocarditis, neither of which exists. I have now dismissed all the likely causes of the lesion producing this affection of the facial and sixth nerves; except the commonest and most important, namely, hæmorrhage—hæmorrhages from the various surfaces, such as the nose, the mouth, the pharynx, the larynx, under

the conjunctiva are common in whooping-cough during severe paroxysms. And we are not without instances, verified by post-mortem examinations, of hæmorrhages into the brain occurring during a severe paroxysm of coughing. Gowers says that hæmorrhages into the substance of the brain, minute and massive, have occurred in young children during the paroxysms of whooping-cough.

If this case be due to hæmorrhage it must be small to cause so localized a paralysis; but the absence of other paralysis (such as of leg or arm) can not be regarded as weighing much against this supposition, for examples of such localized paralysis due to small cerebral hæmorrhages and confirmed by post-mortem examinations are not wanting.

It would also be interesting to know whether the hæmorrhage be venous, arterial or capillary. Gowers says that healthy arteries, no matter how great the internal pressure to which they are subjected, seldom, perhaps never, give way, but that healthy veins may give way under extreme pressure. In this case we have no reason to believe that the arteries are in any way diseased.

On the other hand, from the high venous pressure, from the fact that veins have thinner walls than arteries, from the fact that healthy veins may, under extreme pressure, give way, and from the fact that the hæmorrhages which usually occur in whooping-cough are venous, we may reasonably assume that this hæmorrhage is venous.

THE USE OF FORMALINE IN OPHTHALMIC PRACTICE. SWAN M. BURNETT, M.D., Ph.D. (*Ophthalmic Record*, March, 1896).

Formaline is a forty per cent. watery solution of formaldehyde. Formol, the German preparation is of approximately the same strength. Formaldehyde itself is a strong escarotic and one of the most powerful germicides and antiseptics known. Animal tissues suspended in its fumes are preserved from putrefaction. As a tissue preserver formaline has no superior, and will no doubt supplant alcohol for that purpose, since it is much cheaper and has many other advantages as a preserving agent. In the first place it does not act by extract-

ing the watery constituents from the tissues, and there is therefore no shrinkage and consequently no distortion of the elements from their normal relations. The tissues also retain much of their original color and transparency. Even the crystalline lens does not become completely opaque under its influence for quite a long while. In the preparation of tissues for section for microscopic examination, therefore, it is vastly superior to alcohol or Müller's fluid or any other agent that has been yet employed for that purpose, and it has the further advantage of being very rapid in its action. An eye will become sufficiently hard for cutting in three or four days in a five or ten per cent. solution which is the strength usually employed as a hardening agent.

The ophthalmological world first became aware generally of the value of this quality of formaline through Prof. Leber, of Heidelberg, at the Ophthalmological Congress in Edinburg, in 1894. The credit of its first use, however, I believe belongs to Hermann.

My special purpose in this short paper is to set forth its therapeutic value in ophthalmic medicine and surgery. It is a germicide of great power, and has little, if any, toxic properties. Up to this time no case has been reported of any deleterious effect from its use. It has the power of rapidly diffusing itself through the tissues, and is therefore far superior to sublimate, which, in addition to its toxic effect, coagulates the albumen at or near the surface, which not only forms a barrier to its further penetration of the tissues, but even constitutes a good nidus for the development of pathogenic germs.

Most excellent results have been obtained from its use in infecting ulcers of the cornea and purulent conjunctivitis. The corneal ulcer can be touched with solution of 1 to 200 or 1 to 500 once every day, and for general use as an antiseptic a collyrium of 1 to 1,000 or 1 to 2,000. I have a few times cauterized the ulcer with 1 to 100. One case of serpiginous ulcer I treated with formaline alone, and it turned out more satisfactorily than I have seen such cases by the old methods. In muco-purulent and purulent conjunctivitis my experience with it has been satisfactory. In the severe forms I use it as a general antiseptic in addition to the silver nitrate. In acute catarrh of the conjunctiva it has acted most promptly when used as a collyrium of the strength of 1 to 1,000 or 1 to 2,000

applied every four hours. For ulceration of the edges of the lids it acts well. The dosage in such cases is to be regulated by the desired effect, from 1 to 100 as a mild caustic, to 1 to 2,000 as a stimulant.

For the disinfection of instruments and keeping them aseptic, it had the great advantage of not dulling the edges of knives. It can also be used for washing out the conjunctiva previous to operation on the eye, though its disadvantage for this purpose is the slight burning sensation it causes sometimes even in solution of 1 to 1,000. This, however, is trivial.

A CASE OF GUMMA OF THE CILIARY REGION.

H. CAMPBELL HIGHET, M.D., Singapore, Straits Settlements, (*British Medical Journal*, November 7, 1896).

The appearance of a gumma in the ciliary body is a rarity even in ophthalmic practice. According to Berger, only five cases had been reported up till 1892. Of these, one each was reported by Mauthner, Woinow, Alt, Ayres, and Panas respectively. How many more cases may have been reported since then the writer is unable to state, separated as he is so far from most of the ordinary sources of bibliographical research. It may be taken for granted, however, that the affection is a rare one if one judges from the paucity and, in fact, in most cases, the absence of any reliable information on the subject, even in the latest text-books.

The following case which I have had under observation almost since its commencement seems to me to be a typical example of the affection.

G., a Malay male, aged 30, contracted syphilis about two and a half years ago. He came to me on March 25 last with the history that two months previously he had suffered from inflammation of the right eye of a nature similar to the present affection. He had been treated locally and constitutionally by a colleague, and had made a good recovery. A fortnight ago the left eye became inflamed, and this time he was much more anxious than on the previous occasion, because in the course of a week the sight had so rapidly deteriorated that he could not count fingers at 10 inches. I saw him therefore, for the first time two weeks after the origin of the disease, and

noted as follows: The left eye shows much conjunctival and ciliary injection. The cornea is hazy, and the anterior chamber is deep, and contains in its lower part a collection of puro-lymph. In the upper and inner quadrant of the chamber a yellowish-red tumor is seen to project from the iritic angle, while above at a spot corresponding to the site of this growth there is a slight bulging of the ciliary region of a dark reddish purple color. Below in the lower and outer quadrant of the iris there is a smaller and somewhat irregular tumor, which is seen to be almost hidden in puro-lymph, and in the adjacent portion of the ciliary region there is a swelling of a like nature to that already described, but much less pronounced. The tension of the globe is $+1$. There is marked ciliary tenderness, and the patient complains of great pain in the eye and neighboring portions of the head. Associated with the local condition there is considerable constitutional disturbance, foul tongue, anorexia, constipation, slight fever, and sleeplessness.

A week later the ciliary swellings were more prominent, they had in fact developed into ciliary staphylomata, and they already presented the usual bluish black color owing to the pigment showing through the highly thinned sclera.

On April 24, a month after I first saw him, it was noted that the cornea is clearing up and the anterior chamber is free from the presence of puro-lymph, but is still very deep. It is unequally deep, being deepest at the point corresponding to the site of the upper staphyloma into which the iris seems to have been dragged. The pupil, which is irregular in outline, is adherent to the anterior capsule, and lies excentrically, being well in the upper and inner quadrant of the chamber, owing to the dragging of the iris. The upper staphyloma is very distinct, and is quite 4 mm. in diameter. The lower staphyloma has diminished considerably, and leaves two dark, elongated patches level with the surrounding sclera. The tension is still $+1$. Vision now amounts to the perception of objects moving in front of the eye—an improvement on the condition a month ago, when he was not conscious of a change from light to shade.

On June 20 it was noted that the staphyloma had greatly diminished in height and that although the pupil was still fixed the iris seemed not to be drawn so tightly towards the staphy-

loma. The tension was normal, and fingers could be counted readily at 14 inches.

Remarks.—This case is seen to be a very typical one in every respect. A gumma of the ciliary body usually appears in one to three and a half years after the appearance of the initial sore, according to Berger. In one case it arose about two and a half years after infection. It is generally preceded by iritis as it was here for nearly a fortnight. The number of gummata has varied in the five former cases from one to five in each case. In this case there were two. The bulging of the sclera which results may increase and give rise to opacity in the neighboring part of the cornea, as it has done in the case now reported, and the thinning may even go on to rupture of the gumma through the sclera. When perforation occurs, atrophy of the globe follows, but atrophy may follow even without rupture, according to Berger. In the case reported by Panas perforation occurred, and yet a cure took place. In the case now reported, the right eye has remained perfectly well since the attack of inflammation from which it suffered two months previous to the affection of the left.

Treatment in this case consisted of the administration of a quarter of a grain of calomel combined with opium every three hours. When the gums began to show signs of approaching salivation the dose was reduced to half a grain of calomel *per diem*. A fortnight later the iodide of potassium was commenced in addition to the calomel. Locally bolladonna fomentations and atropine drops were employed throughout the first few weeks. In the course of a month, however, when it was found that the tension was remaining high and that the bulging of the staphylomata was increasing, eserine was used in place of atropine, and a compress and roller bandage were firmly applied. This soon reduced the tension, and the staphylomata ceased to enlarge.

Writing now, five months after the origin of the gumma, the visual acuity amounts to counting fingers at 18 inches.

POSITIVE ABERRATION OF THE EYE. EDWARD JACKSON, M.D. (*Polyclinic*, August, 1896).

Most persons who wear correcting glasses for hyperopia, and see perfectly through them during the day, *see better with-*

out their glasses at dusk. Dr. Jackson showed that this was due to the lower hyperopia, or actual myopia, present at the margin of most dilated pupils; so that when the patient has to rely on this larger area of the dilated pupil to see in a dim light, the glasses make him near-sighted. This optical defect he calls the *positive aberration* of the eye, and finds it present in some degree in a large majority of all eyes.

REMARKS ON PROGNOSIS IN EXOPHTHALMIC
GOITRE. R. T. WILLIAMSON, M.D., Lond. (*British
Medical Journal*, November 7, 1896).

The prognosis in exophthalmic goitre is a point of considerable importance. The patients who suffer from this disease are very nervous and excitable. In many cases the disease has followed some mental shock, and if a very favorable prognosis can be honestly given it will do much to calm the excited mental condition of the patient, and will be of considerable service therapeutically. The following are statistics with reference to thirty-two cases in which I have attempted to ascertain the course of the disease:

RESULT IN THIRTY-TWO CASES.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|----|
| Fatal termination, | - | - | - | - | - | - | - | 6 |
| Recovery, | - | - | - | - | - | - | - | 5 |
| Recovery almost complete, | - | - | - | - | - | - | - | 2 |
| (Duration of life 17 years and 7 years) | | | | | | | | |
| Considerable improvement, | | | | | | | | |
| (Duration of disease in years $9\frac{1}{2}$, $7\frac{1}{3}$, 7, 6, 2), | 5 | | | | | | | |
| Only slight improvement | | | | | | | | |
| (Duration of disease in years 7, $6\frac{1}{2}$, 5, $2\frac{1}{2}$, | | | | | | | | |
| $1\frac{3}{4}$, $1\frac{3}{4}$, 1), | | - | - | - | - | - | - | |
| | | | | | | | 7 | 18 |
| Condition much the same | | | | | | | | |
| (Duration of disease in years 9, 7, $5\frac{1}{2}$, $3\frac{1}{2}$, 2, | | | | | | | | |
| 2), | | - | - | - | - | - | - | |
| | | | | | | | 6 | |
| Patient still alive at the end of 7 years, condition not known, | - | - | - | - | - | - | - | 1 |
| <hr/> | | | | | | | | |
| Total, | - | - | - | - | - | - | - | 32 |

If we eliminate from the above table the cases which have been under observation during the shorter periods, and include only those cases which have terminated fatally, those

which have recovered, and those in which the disease has existed for over five years, we have the following results in twenty-four cases: Fatal termination in six cases; recovery complete, or almost complete, in seven; improvement in seven; condition much the same in three; patient alive and following her occupation (exact condition unknown) one case. These conclusions furnish statistics which I believe represent fairly well the course of the disease.

SOME BACTERIOLOGICAL EXPERIMENTS BEARING UPON THE STERILIZATION OF INSTRUMENTS USED IN CATARACT EXTRACTION.

SAMUEL THEOBALD, M.D. (*Journal of Eye, Ear and Throat Diseases*, October, 1896).

The question of the best method of sterilizing surgical instruments is one of great practical importance. Heat furnishes the most certain means of destroying pathogenic organisms; but, its effect upon the delicate instruments used in eye surgery is most deleterious, especially if they be subjected to its action for a considerable length of time.

Influenced by what Dr. Knapp told us some years since ("Trans. Amer. Ophth. Soc., 1886), as to the practicability of removing pathogenic organisms from cataract knives and similar smooth instruments by the simple mechanical process of washing and wiping, and at the same time wishing to avoid the blunting effect of long exposure to heat. I have been in the habit for a number of years, of cleaning my eye instruments previous to operating by giving them a brief *washing* in boiling water. This is accomplished by the aid of fixation forceps and a pledget of absorbent cotton, which has been boiled for some minutes, the cotton held by the forceps being used to wash off the blade of the cataract or iridectomy knife, the cystotome, etc., while these are immersed for a few moments in boiling water.

The efficiency of this method of sterilization seems to have been shown by the clinical results obtained; but, recently it occurred to me to put its efficiency to the test of bacteriological experiment, and, further, to endeavor to discover how far the sterilization was due to the comparatively brief action

of the heat and how far to the mechanical effect of the washing.

The blades and teeth of a pair of iris forceps were contaminated with a pure culture of the staphylococcus-pyogenes aureus. The blades of the forceps were then washed in boiling water, in the manner above described, and were then introduced into a culture-tube containing bouillon. No growth resulted, showing that the sterilization of the forceps had been effectual. A cystotome was treated in like manner, and with the same negative result—the culture medium remained sterile.

The iris forceps, after having been contaminated with staphylococcus aureus, were washed in water which had been sterilized by boiling, but had been allowed to stand until it had become lukewarm. The washing was done with the fixation forceps and cotton, as in the other experiments. The bouillon gave a growth of staphylococcus aureus.

A cataract knife contaminated with staphylococcus aureus was washed under the water spigot with sterilized absorbent cotton held in the fixation forceps. The culture tube gave staphylococcus aureus and also water bacteria.

These experiments seem to show that bacteria are not removed by simple washing, even from the smooth surfaces of a cataract knife. What they show most positively, however,—and this is point of great practical importance—is that, so far as the ordinary pyogenic organisms are concerned, a very brief *washing* in boiling water, which is not likely to appreciably blunt their cutting edges, suffices to sterilize effectually such instruments as are commonly used in eye surgery.

CYST OF THE RIGHT OPTIC DISC, CHOROIDITIS,
MACULAR HÆMORRHAGES. S. D. RISLEY, M.D.,
Philadelphia (*Annals of Ophthalmology and Otology*, October, 1896).

Mrs. A. H., a Polish woman, aged 38, presented herself at the Philadelphia Polyclinic on October 24, 1895, complaining of impaired vision in both eyes and violent tempero-occipital headache. Vision was reduced to $\frac{1}{Lx}$ in each eye, while only large type could be deciphered at her selected near point. The corneæ were transparent, excepting a few gray opacities scattered around the periphery of both. The lens and vitreous

were transparent in each eye. The ophthalmoscope showed beside retino-choroidal disease in both eyes, a peculiar cystoid body (lemon-shaped) situated on the head of the optic nerve and concealing the upper half from view. There was myopic astigmatism present in both eyes, so that — 2 D. was required for the study of the fundus, but the apex of the cyst could be clearly seen with + 3 or + 3.50 D. Its projection, therefore, above the plane of the disc was approximately 2 mm. Directly below the cyst, but apparently not connected with it, were the remains of the hyaloid artery.

The great feature or origin of this unique body upon the nerve must remain in uncertainty. I have not seen any similar appearance, and have not found any record of a similar case. There seems no rational connection between the disease of the fundus oculi and this curious cyst on the nerve. A more probable relation exists between it and the remains of the hyaloid artery; indeed, I was at first disposed to regard it as a cyst-like expansion of that vessel; but the most careful study shows no demonstrable connection between them, as is so obvious in the case presented by Mitvsky.

AN OPERATION FOR SHORTENING THE OCULAR MUSCLES IN ASTHENOPIA, ETC. FRANCIS VALK, M.D. *New York Medical Journal*, November 7, 1896).

The operation for advancement of the ocular muscles has been in use by ophthalmic surgeons for many years, is a delicate, and extensive operation in which an assistant is required:

muscle and forcibly separating them to the desired extent, I now pass beneath the muscle this little instrument, which I call twin strabismus hooks. This instrument consists of two arms connected by a hinge, over which hinge is placed a small spring sufficiently strong to keep the two hooks placed at the free ends of the arms well apart or separated while the suture is being applied. When in position the instrument is resting on the patient's cheek out of the operator's way. I now take a suture of No. 0 or 00 sterilized catgut that I have had put up in capsules, each containing sufficient for one operation, armed with a fine, round half-curved needle. This needle is now passed through the tendon close to the sclera and beneath the hook, coming out above, then passing it from within outward through the upper edge of the belly of the muscle at a point as far back as we desire to shorten the muscle. It is now carried across the muscular tissue and is again passed from without inward through the lower edge and comes out below; we now pass the needle back beneath the hook through the lower part of the tendon and the needle is cut off. In passing the suture we may commence below and so simply reverse the process. Now remove the hooks and carefully tie the suture according to the desired effect. When the suture is tied we see the small knuckle or *tuck* formed at the incision; this will slowly disappear as the suture is absorbed and the tissues firmly united. After the suture is tied I bring the edges of the opening made in the conjunctiva as nearly together as possible and then simply apply cold-water dressing. The eye is never bandaged except when the patient is going out, and moreover, it may be used. In cases of strabismus, either convergent or divergent, I generally cut the opposing muscle by a complete tenotomy before tying the suture.

REPORT OF A CASE OF PARALYSIS OF CONVERGENCE WITHOUT IMPAIRMENT OF ASSOCIATED MOVEMENTS. HENRY W. HAYNE, Lawrence, Kan. (*Archives of Ophthalmology*, July, 1896).

October 16, 1895, Dr. Morse sent to my office Miss W., aged 17, with instructions that I should take her refraction, and, if necessary, prescribe the proper lenses, as she had been

a constant sufferer with headaches, both frontal and temporal, for the past nine months, and eye strain had been diagnosed. She is a well developed girl with dark hair and eyes, and apparently in robust health, with family history good. She is a close student and graduated without having any eye strain, and always enjoyed good health.

A careful examination without a mydriatic showed the following condition: V., $\frac{20}{xxx}$ for each eye, which was not improved by glasses. Abduction, 12° ; adduction, 4° ; exophoria, 3° . Homatropine was prescribed but as that failed to control accommodation three drops of a 4 gr. sol. of atropine were instilled. The ophthalmoscope revealed nothing unusual except a moderate flushing of both discs, which somewhat invaded a well-marked physiological cup. She accepted R., $+0.25 \text{ C} + 0.25 \text{ c. ax. } 20$; L., $+0.50^\circ$, which raised her visual acuteness to $\frac{20}{xx}$. Her full correction was ordered to be worn constantly, and she was told to report in one week. At that time her visual acuteness had risen in each eye to $\frac{20}{xv}$ both with and without glasses, with no cessation of the headaches, which would be brought on at any time by reading or sewing ten minutes. There was now no flushing of either disc. Abduction and adduction being the same, prism 8° , total, in frames were ordered and she was taught to use them (Dr. Gould's method) twice daily at home, and to report at the office each day. Iodide of potassium and the bitter tonics were also prescribed at that time. Under the treatment she gradually improved until November 1, when adduction was 10° ; abduction 6° , with the same exophoria of 3° remaining. Abduction and adduction were always measured before the exercise was taken. I could frequently run her "convergence stimulus" adduction up to 35° in a few minutes without any discomfort whatever, and she felt encouraged as her symptoms were less severe. November 2, she presented herself complaining of headache of more than usual severity. Her adduction had dropped to 0° , the red glass produced diplopia at 20 feet, and she had exophoria, 3° . She was also found to have a divergent alternating squint which produced diplopia for all objects nearer than one metre; could detect no reduction in the mobility of either eye in any direction, and the amount of deviation remained the same in all portions of the field. She could follow the finger moving rapidly from side to side without any

apparent trouble, but instantly the finger was stopped, diplopia supervened. Tests were made in all nine positions, but in none of them was there any change in the diplopia, neither was there any tilting of the false image. There was no ptosis, pupillary reaction normal, both to light and accommodation. Amplitude of accommodation $9\frac{1}{2}$ cm., or about 11 D. for each eye. All gymnastics were now discontinued. The point of maximum convergence gradually receded until a candle in a darkened room at 20 feet was clearly seen double, which was corrected by a 1° prism base in. * * * Up to the present, June, 1896, all treatment has failed to relieve either the diplopia or her headaches, which are brought on by any near application of the eyes.

A CASE WHERE A FOREIGN BODY REMAINED IN THE LENS FOR SEVENTEEN MONTHS.

JOHN DUNN, M.D. (*Virginia Medical Semi-Monthly*, October 9, 1896).

Mr. D., aged 25, in December, 1894, while breaking with a hammer some old pieces of glass from a window-frame, was struck in the left eye "with a piece of the putty." In February, 1895, he came under my observation. At this time there was no clouding of the lens, but beneath the anterior capsule, about the centre of its outer, lower quadrant, was a small speck, whose visible length did not exceed $\frac{1}{2}$ mm., and whose breadth was scarcely more than $\frac{1}{4}$ mm. "Foreign body in the lens" was the diagnosis made. No rupture of the anterior capsule was visible, nor were there at this time any inflammatory appearances about the eye.

After two visits Mr. D. disappeared, and was not seen again until June 8, 1896. In the months which had intervened, the eye had, on several occasions, been very painful. On June 5 the eye became much inflamed, and caused Mr. D. such discomfort that he decided to be no longer his own doctor.

On June 8 the eyeball was congested; there was a marked pink zone surrounding the cornea; pupil noticeably dilated; no iritis, the iris responding fully to atropia; tension, at the time of visit, not perceptibly increased. The lens was now completely cataractous; its general color was a grayish-yellow,

which contrasted strongly with the condition existing about the foreign body. This latter could be seen as a black speck in the centre of a cup-shaped area of grayish-white lens substance. As nearly as could be made out, the capsule over this area, which measured about 2 mm. at the surface, was wanting. There was no lens substance in the anterior chamber.

The lens was extracted without difficulty. The "piece of putty" proved to be a fragment of steel from the hammer, and measured 1 mm. by $\frac{1}{4}$ mm. The grayish-white lens-substance surrounding the foreign body was examined under the microscope. No white blood cells were found in it. The extraction wound healed kindly. Excellent vision was obtained with use of proper glass, the fundus being normal.

The interest of the above case lies in the length of time that the foreign body remained in the lens. The case shows further what we are to expect when the lens capsule has been punctured by a very small foreign body which afterwards lodges in the lens-substance. It is to be noted besides that, although there resulted a cataractous condition, together with a change of consistency of the whole lens-substance, the disintegration was most advanced about the foreign body. The pain suffered from time to time by Mr. D. was due to swelling of the lens.

BOOKS AND PAMPHLETS.

SKIASCOPY AND ITS PRACTICAL APPLICATION TO THE STUDY OF REFRACTION. By E. JACKSON, A.M., M.D. Second edition. Twenty-seven illustrations. Philadelphia: Edwards & Docker Co. 1896.

It is only about a year that the first edition of this book has appeared. That already a second one became necessary is not only a gratifying tribute to its gifted author, but also a proof that the study of skiascopy is growing rapidly. This second edition is but slightly altered and has one more illustration than the first one.

PHYSICIANS' VISITING LIST FOR 1897. Philadelphia: P. Blakiston, Son & Co.

The improvements made in this Visiting List seem to have met with very general approbation and we are glad to recommend it. ALT.

PAMPHLETS.

"Latent Mastoid Disease." By Harry Friedenwald, M.D.

"Argonia in Acute Stages of Gonorrhœa." By G. K. Swinburne, M.D.

"Bony Growth of the Auditory Canal." By William Cheatham, M.D.

"Deviation of the Cartilaginous Nasal Sæptum, Its Cure." By Emil Mayer, M.D.

"An Operation for Shortening the Ocular Muscles in Asthenopia." By Francis Valk, M.D.

"Dermatitis Periocularis Medicamentosa (Pseudo-Erysipelas)." By Edward Friedenberg, M.D.

"Description of a Few of the Rarer Complications During and Following Cataract Extraction." By Ch. A. Oliver, M.D.

"Transactions of the Medical and Chirurgical Faculty of the State of Maryland." Ninety-Eighth Session. Baltimore. April, 1896.

"The Microscopical Proof of a Curative Process in Tuberculosis; or the Reaction of Tuberculin Evidenced by Blood-Changes Hitherto Unrecognized." By Ch. Denison, M.D.

THE WESTERN OPHTHALMOLOGICAL, OTOLOGICAL AND LARYNGOLOGICAL ASSOCIATION will meet in St. Louis, Mo., on the first Thursday and Friday of April, 1897. Physicians, desiring to present papers to this meeting are herewith requested to send the titles to the Secretary of the Association. It is intended to mail programmes by February 1, 1897. The railroads have promised a one and one-third fare on the certificate plan. The indications point to a large and useful gathering.

HAL FOSTER, M.D., Secretary.

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